ENVIRONMENTAL ASSESSMENT
CONSTRUCTION OF GOLF COURSE
MAINTENANCE FACILITY
VANDENBERG AIR FORCE BASE, CALIFORNIA

AUGUST 2000

Prepared by

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FINDING OF NO SIGNIFICANT IMPACT
CONSTRUCTION AND OPERATION OF A GOLF COURSE MAINTENANCE FACILITY
AT VANDENBERG AIR FORCE BASE, CALIFORNIA

The attached environmental assessment (EA) analyzes the potential for impacts to the environment as a result of constructing and operating a new golf course maintenance facility and demolishing or disassembling three existing buildings that are currently used for golf course maintenance activities at Vandenberg Air Force Base (AFB), California. A No-Action Alternative was also considered. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989).

This finding of no significant impact summarizes the results of the evaluation for proposed construction, demolition/disassembly, and operation activities. The discussion focuses on activities that have the potential to change both the natural and human environments.

Summary of Environmental Consequences

Proposed Action

Aspects of the local community, utilities, land use and aesthetics, transportation, polychlorinated biphenyls, radon, medical/biohazardous waste, ordnance, water resources, noise, and environmental justice would not be affected.

Because no employment changes would occur and utility requirements for golf course maintenance activities would not change, impacts to utilities (water, wastewater, solid waste, electricity, and natural gas) are not expected. No impacts to roadways, air transportation, or rail transportation are anticipated as a result of proposed construction, demolition/disassembly, and operation activities.

Because proposed construction activities would occur within the current golf course maintenance compound, no land use changes would occur. The new structure would be designed to be aesthetically compatible with the Marshallia Ranch Golf Course Clubhouse, which is approximately 300 feet south of the site. In addition, an earthen berm with landscape vegetation would be incorporated to shield views of the compound from surrounding areas. This would result in an improvement in the aesthetic quality of the area.

Hazardous materials and waste would be managed in accordance with applicable federal, state, and local regulations; therefore, no impacts would occur during construction, demolition/disassembly, and operation activities. Construction of the golf course maintenance facility would avoid Installation Restoration Program/Area of Concern sites and would be coordinated with future investigations to avoid potential impacts. Storage tank installation would meet regulatory requirements for design, construction, installation, and operation. Potential effects from exposure to asbestos and lead-based paint would be mitigated through compliance with applicable federal, state, and local requirements.

Standard construction practices would be implemented to control potential soil erosion and water runoff. No surface water resources are near the proposed development site, and no increase in water use would occur with the new facility (no increase in employees at the new facility).

During construction, a potential exists for short-term impacts to local air quality from fugitive dust; however, dust would be controlled by the application of water or dust suppressants. No increase in vehicular emissions would be experienced since no change in employment would occur. Air emissions from construction and operation of the golf course maintenance facility are not expected to affect maintenance of the attainment status of the respective pollutant standards.

The proposed project emissions would not exceed the Santa Barbara County Air Pollution Control District significance threshold of 25 tons per project for any pollutant. Therefore, air quality impacts are not expected to exceed any ambient air quality standards or to inhibit the area from achieving National Ambient Air Quality Standards. In addition, construction activities would be temporary and in compliance with applicable construction permit requirements.

Vegetation losses would be less than 1 acre as a result of construction and paving. The vegetation that would be disturbed consists of exotic species, which are of little ecological value. No wetlands are near the site of the proposed facility or the three facilities to be demolished or disassembled. No threatened or endangered species are known to exist on the site. A bat species inventory indicated that Building 1324 was used as a night roost by Mexican free-tailed bats (*Tadarida brasiliensis*) and as a day roost by big brown bats (*Eptesicus fuscus*). A large day roost (500+) of big brown bats was also identified in Building 1341. Buildings 1324 and 1341 may also be used by two state-listed special concern species, the pallid bat (*Antrozous pallidus*) and Townsendi big-eared bat (*Corynoshinus townsendi*). Demolition/ disassembly activities would displace bats currently roosting in Buildings 1324 and 1341. Prior to demolition/disassembly activities, a qualified biologist would survey the buildings to determine if bats are roosting. If bats are roosting, an alternate bat roost could be constructed away from high human activity, and passive exclusion could be implemented to allow the bats to leave the building but prevent them from returning. Bat species that would be affected include the Mexican free-tailed bat, big brown bat, pallid bat, and Townsendi's big-eared bat.

An archaeological survey of the proposed development site conducted in March 2000 identified prehistoric and historic material. Because of the potential for additional cultural material to be uncovered during construction activities, an archaeological monitor and a Native American monitor would be on site during proposed facility construction and demolition/disassembly activities.

In compliance with the National Historic Preservation Act, the Air Force will complete the Section 106 review process with the California State Historic Preservation Officer (SHPO) for concurrence on this issue. Should significant subsurface deposits be uncovered during construction, work would stop and the California SHPO would be notified.

A historic building inventory and evaluation of facilities within the golf course maintenance compound determined that none of the buildings is eligible for listing in the National Register of Historic Places. Vandenberg AFB staff would consult with the California SHPO and the Advisory Council on Historic Preservation early in the project to reduce conflicts and delays.

No-Action Alternative

The No-Action Alternative would result in no significant impacts to hazardous materials/waste management, physical resources, air quality, biological resources, cultural resources, or environmental justice.

Cumulative Impacts

Cumulative impacts result from "the incremental impact of actions when added to other past, present, and reasonable foreseeable future actions regardless of what agency undertakes such other actions." Because the proposed activities are within the existing golf course maintenance compound, and construction would follow best management practices to ensure any potential environmental impacts remain minor, no cumulative impacts are expected.

Mitigations

The EA concluded that no significant impacts to the environment would result from construction and operation of the golf course maintenance facility or from the demolition/disassembly of existing buildings within the golf course maintenance compound. Compliance with applicable regulations and implementation of best management practices during construction and demolition/disassembly activities would preclude the need for mitigation measures.

Decision

As a result of the analysis of impacts in the EA, it is concluded that the proposed activities would not have a significant effect on human health or the natural environment; therefore, an environmental impact statement will not be prepared.

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COVER SHEET
ENVIRONMENTAL ASSESSMENT
FOR CONSTRUCTION OF GOLF COURSE MAINTENANCE FACILITY
AT VANDENBERG AIR FORCE BASE, CALIFORNIA

a. Responsible Agency: Department of the Air Force

b. Proposed Action: Construct a golf course maintenance facility at Vandenberg Air Force Base (AFB), California; demolish or disassemble three existing facilities currently used for golf course maintenance operations.

c. Written comments and inquiries regarding this document should be directed to: Mr. William Bushman, HQ AFCEE/ECA, 3207 North Road, Brooks Air Force Base, Texas 78235-5363, facsimile (210) 536-3890.

d. Designation: Environmental Assessment (EA)

e. Abstract: The purpose of this action is to improve the golf course maintenance facility that supports the Marshallia Ranch Golf Course at Vandenberg AFB. The existing golf course maintenance operation is housed in four main buildings, two of which are in deteriorated condition. The existing buildings have deficiencies and do not accommodate needed activities.

This EA has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the Proposed Action. Two alternatives were examined: the Proposed Action and a No-Action Alternative. The Proposed Action is to construct a new golf course maintenance facility and demolish or disassemble three existing facilities that are currently used for golf course maintenance operations. The No-Action Alternative involves the continued use of existing facilities.

The environmental resources potentially affected by the Proposed Action are hazardous materials management, hazardous waste management, Area of Concern sites, storage tanks, asbestos, lead-based paint, pesticide usage, soils and geology, air quality, biological resources, and cultural resources. Based on the nature of the activities that would occur under the Proposed Action and No-Action Alternative, the Air Force has determined that minimal or no adverse effects to the above resources are anticipated.

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LIST OF ACRONYMS/ABBREVIATIONS

ACM	asbestos-containing material
A.D.	Anno Domini
AFB	Air Force Base
AFI	Air Force Instruction
AHERA	Asbestos Hazard Emergency Response Act
AOC	Area of Concern
APE	Area of Potential Effect
AST	aboveground storage tank
B.C.	Before Christ
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CCR	California Code of Regulations
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DTSC	Department of Toxic Substances Control
DV	Distinguished Visitor
EA	environmental assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FONSI	Finding of No Significant Impact
LBP	lead-based paint
MOA	Memorandum of Agreement
MOGAS	motor gasoline
$\mu g/m^3$	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
P.L.	Public Law
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
POL	petroleum, oil, and lubricants
ppm	part per million

RCRA	Resource Conservation and Recovery Act
ROC	reactive organic compound
ROI	region of influence
SAP	satellite accumulation point
SBCAPCD	Santa Barbara County Air Pollution Control District
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasures Plan
STP	shovel test pit
TCP	traditional cultural property
tpy	tons per year
U.S.C.	U.S. Code
VOC	volatile organic compound

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

This environmental assessment (EA) examines the potential for impacts to the environment as a result of constructing a new golf course maintenance facility and demolishing or disassembling three existing facilities that are currently used for golf course maintenance operations at the Marshallia Ranch Golf Course on Vandenberg Air Force Base (AFB), California. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989).

1.1 PURPOSE AND NEED

The purpose of this action is to improve the golf course maintenance facility that supports the Marshallia Ranch Golf Course at Vandenberg AFB (Figure 1-1). The existing golf course maintenance operation is housed in four main buildings, two of which are in deteriorated condition. The existing buildings have deficiencies and do not accommodate needed activities.

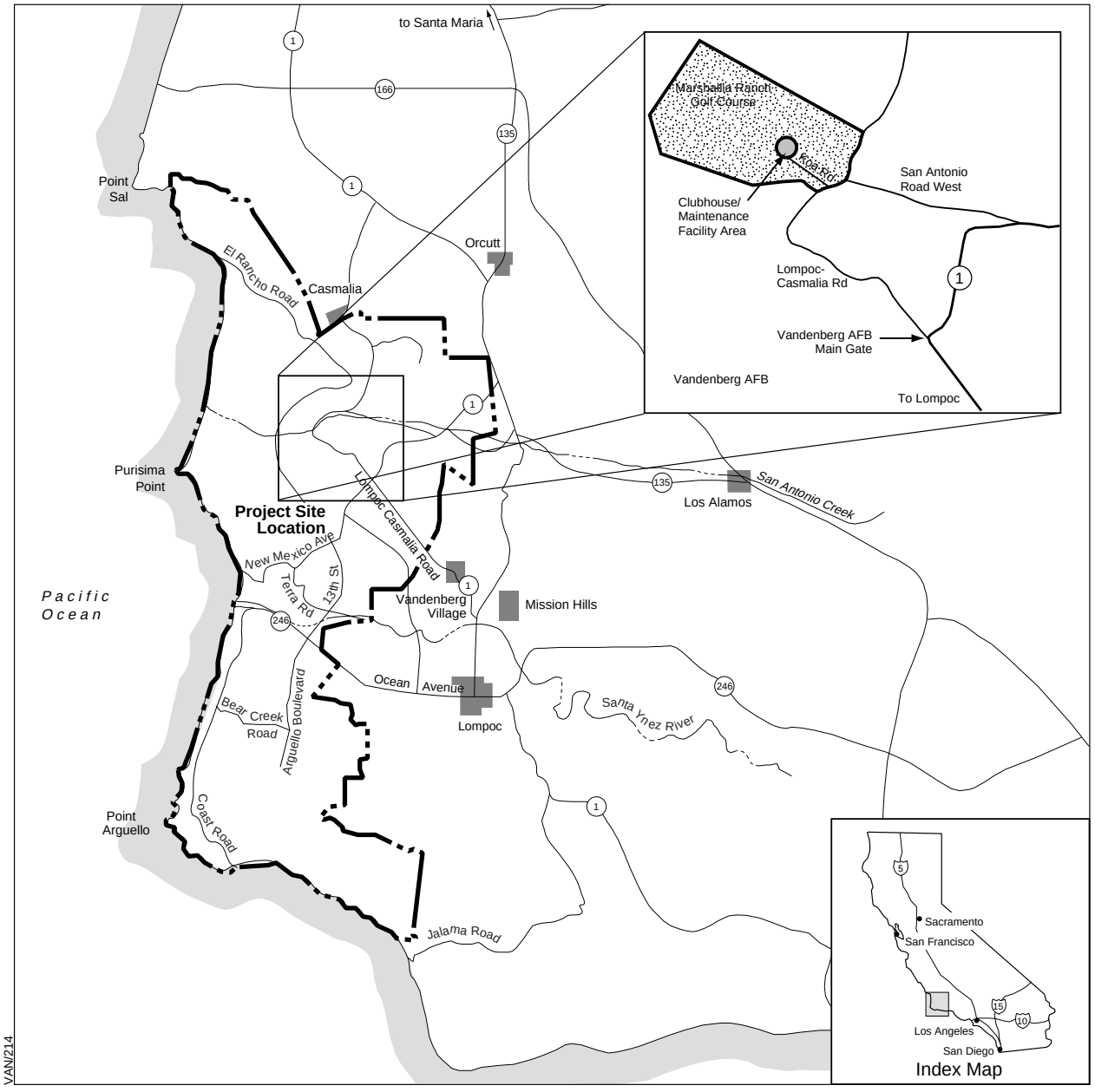
1.2 DECISIONS TO BE MADE

This EA will provide the Air Force decision maker with information required to understand the potential environmental consequences of the construction and operation of the new facility and the demolition or disassembly of the three existing buildings to support the decision of whether to prepare an environmental impact statement (EIS) or a Finding of No Significant Impact (FONSI) (40 CFR Part 1508.9).

1.3 SCOPE OF THE ENVIRONMENTAL REVIEW

This EA describes and addresses the potential environmental impacts of the activities associated with the construction of a new golf course maintenance facility and the demolition or disassembly of three buildings at Vandenberg AFB. The EA also evaluates the potential environmental impacts of the No-Action Alternative.

Consistent with the CEQ regulations, the scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of the Proposed Action and No-Action Alternative. Under the Proposed Action, a new golf course maintenance facility would be constructed,



EXPLANATION

Base Boundary

1 State Highway

0 1.75 3.5 7 Miles

Regional Map

Figure 1-1

and three existing facilities that are currently used for golf course maintenance operations would be demolished or disassembled.

Approximately 8,000 square feet of construction is proposed within the golf course maintenance compound at Vandenberg AFB; less than 1 acre of land would be disturbed during the construction and demolition/disassembly activities. The No-Action Alternative involves the continued use of existing facilities.

Resources that have a potential for impact were considered in more detail in order to provide the Air Force decision maker with sufficient evidence and analysis to determine whether or not additional analysis is required pursuant to 40 CFR Part 1508.9. The resources analyzed in more detail are: hazardous materials management, hazardous waste management, storage tanks, Area of Concern (AOC) sites, pesticide usage, asbestos, lead-based paint, soils and geology, air quality, biological resources, and cultural resources. The affected environment and the potential environmental consequences relative to these resources are described in Chapter 3.0.

Initial analysis indicated that construction and demolition/disassembly activities would not result in either short- or long-term impacts to socioeconomics, utilities, land use and aesthetics, airspace, transportation, polychlorinated biphenyls (PCBs), radon, ordnance, water resources, noise, or environmental justice. The reasons for not addressing these resources are briefly discussed in the following paragraphs.

Socioeconomics. Because there would be no inmigration or outmigration as a result of the Proposed Action or No-Action Alternative, neither the regional population nor military payrolls within the region is expected to change. Therefore, socioeconomics was not analyzed in this EA.

Utilities. Because no employment changes would occur and utility requirements for golf course maintenance activities would not change, impacts to utilities (water, wastewater, electricity, and natural gas) are not expected and are not analyzed in this EA.

Land Use and Aesthetics. Because proposed construction activities would occur within the current golf course maintenance compound, no land use changes would occur. The new structure would be designed to be aesthetically compatible with the Marshallia Ranch Golf Course Clubhouse, which is approximately 300 feet south of the site. In addition, an earthen berm with landscape vegetation would be incorporated to help screen the compound from surrounding areas. This would result in an improvement in the aesthetic quality of the area. No land disturbance or facility demolition would occur under the No-Action Alternative. Impacts to land use and aesthetics are not expected and are not analyzed in this EA.

Airspace. There are no aircraft operations associated with the Proposed Action and No-Action Alternative. Impacts to airspace are not expected and are not analyzed in this EA.

Transportation. Because no changes to road, air, or rail transportation are associated with the Proposed Action or No-Action Alternative, impacts to roadways, air transportation, and rail transportation are not expected and are not analyzed in this EA.

PCBs. Only one transformer is situated within the golf course maintenance compound. PCB sampling results indicate that the transformer contains less than 1 part per million (ppm) PCB. Therefore, impacts from PCBs are not expected and are not analyzed in this EA.

Radon. Because the proposed structure is of a type where radon levels are not a concern (i.e., it would not be used for lodging or permanently occupied), impacts from radon are not expected and are not analyzed in this EA.

Ordnance. Ordnance has not been stored, used, or disposed of within the proposed construction site or facilities proposed for demolition/disassembly, and the Proposed Action would not include the storage, use, or disposal of ordnance; therefore, impacts from ordnance are not expected and are not analyzed in this EA.

Water Resources. There are no surface water resources near the proposed construction site or facilities proposed for demolition/disassembly, and no increase in water demand would occur with operation of the new facility. In addition, the Proposed Action would not involve disturbance of more than 5 acres; therefore, the construction site would not be subject to National Pollutant Discharge Elimination System (NPDES) permit requirements. The project site does not lie within the coastal zone or in known flood inundation areas. Impacts to water resources are not expected and are not analyzed in this EA.

Noise. Noise generated from proposed construction and demolition/disassembly activities would be minor and short-term. The nearest and only sensitive receptors are the Distinguished Visitor (DV) Quarters (approximately 150 feet to the south) and the Marshallia Ranch Golf Course Clubhouse (approximately 300 feet to the south). The DV quarters are occupied on an intermittent basis, and the clubhouse is a substantial distance from the development site; therefore, impacts from noise are not expected and are not analyzed in this EA.

Environmental Justice. Because the proposed activities would occur on Vandenberg AFB, and employees of the new facility would be from existing golf course maintenance operations, adverse impacts to areas containing disproportionately high low-income and/or minority populations are not expected and are not analyzed in this EA.

1.4 APPLICABLE REGULATORY REQUIREMENTS

Representative federal and state regulations that may be required for implementation of new golf course maintenance facility construction and the demolition or disassembly of the three existing buildings are presented in Table 1-1.

1.5 ORGANIZATION OF THIS DOCUMENT

This EA is organized into the following chapters and appendices: Chapter 2.0 provides a description of the Proposed Action and No-Action Alternative. A summary of the effects of the proposed project with respect to the local community and the natural environment is also included. Chapter 3.0 presents the affected environment (current environmental conditions) and environmental consequences (the result of implementing the Proposed Action or No-Action Alternative). Chapter 4.0 lists the organizations consulted during the preparation of the EA; Chapter 5.0 provides a list of the document's preparers; Chapter 6.0 is a list of individuals and organizations who were sent a copy of the EA; and Chapter 7.0 contains references. Appendix A provides photographs of facilities within the golf course maintenance compound. Appendix B provides a summary of best management practices that could be implemented with the project. Appendix C provides air quality calculations and technical assumptions for this EA.

Table 1-1. Representative Federal and State Regulations

Federal and State Regulation	Typical Activity, or Requirement of Regulation
Federal Regulations	
National Environmental Policy Act (Public Law 91-190, 42 U.S. Code [U.S.C.] 4321-4347 as amended)	Requires federal agencies to analyze the potential environmental impacts of major federal actions and alternatives and to use these analyses as a decision-making tool on whether and how to proceed.
Clean Air Act (CAA) (40 Code of Federal Regulations [CFR] Part 50)	States that applicable state and national ambient air quality standards must be maintained during the operation of any emission source. The National Ambient Air Quality Standards include both primary and secondary standards for various pollutants. Primary standards are mandated by the CAA to protect public health, while secondary standards are intended to protect the public welfare from adverse impacts of pollution, such as visibility impairment.
Clean Air Act Amendments of 1990	Established new federal nonattainment classifications, new emissions control requirements, and new compliance dates for areas in nonattainment. The requirements and compliance dates are based on the nonattainment classification.
Clean Water Act (CWA) (33 U.S.C. 1251 et seq.)	Prohibits the discharge of pollutants from a point source into navigable Waters of the United States, except in compliance with a National Pollutant Discharge Elimination System (NPDES) (40 CFR Part 122) permit. The navigable Waters of the United States are considered to encompass any body of water whose use, degradation, or destruction will affect interstate or foreign commerce. Section 402 of the CWA requires that the U.S. Environmental Protection Agency (EPA) establish regulations for issuing permits for storm water discharges associated with industrial activity. A NPDES permit is required if activities involve the disturbance of more than 5 acres of land.
Resource Conservation and Recovery Act (RCRA) of 1974 (42 U.S.C. 6901 et seq.)	Designed to control the handling and disposal of hazardous substances by responsible parties. Hazardous waste, as defined by RCRA, is "waste that may cause or significantly contribute to serious illness or death, or that poses a substantial threat to human health or the environment when improperly disposed." The treatment, storage, and disposal of solid waste (both hazardous and nonhazardous) is regulated under the *Solid Waste Disposal Act* as amended by RCRA and the Hazardous Solid Waste Amendments of 1984.
Superfund Authorization and Reauthorization Act of 1986	Establishes standards for community right-to-know programs and requires the reporting of releases of certain toxic chemicals.
49 CFR Section 170	Contains Department of Transportation requirements for the shipment of hazardous materials.

Table 1-1. Representative Federal and State Regulations

Federal and State Regulation	Typical Activity, or Requirement of Regulation
National Historic Preservation Act (NHPA) (16 U.S.C. 470 et seq.).	The NHPA is the key federal law establishing the foundation and framework for historic preservation in the United States. The Act authorizes the Secretary of the Interior to expand and maintain a National Register of Historic Places (National Register); it establishes an Advisory Council on Historic Preservation (Council) as an independent federal entity; it requires federal agencies to take into account the effects of their undertakings on historic properties, and to afford the Council an opportunity to comment upon any undertaking that may affect properties listed, or eligible for listing, in the National Register; and it makes the heads of all federal agencies responsible for the preservation of historic properties owned or controlled by them.
Archaeological and Historic Preservation Act (AHPA) (16 U.S.C. 469a et seq.).	The AHPA is directed toward the preservation of historic and archaeological data that would otherwise be lost as a result of federal construction or other federally licensed or assisted activities. The AHPA authorizes the Department of the Interior to undertake recovery, protection, and preservation of archaeological or historic data.
American Indian Religious Freedom Act (42 U.S.C. 1996).	The United States policy to protect and preserve the American Indians' inherent right of freedom to believe, express, and exercise their traditional religions (Native American, Eskimo, Aleut, and Native Hawaiians), including, but not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.
Endangered Species Act (ESA) of 1973	Declares the intention of Congress to conserve threatened and endangered species and the ecosystems on which those species depend. The ESA requires that federal agencies, in consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, use their authorities in furtherance of its purposes by carrying out programs for the conservation of endangered or threatened species.
Section 7 of the ESA (16 U.S.C. 1536)	Contains provisions that require federal agencies to consult with the Secretary of Interior and to take necessary actions to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of endangered species and threatened species.
State Regulations	
CAA of 1988	Develops and implements a program to attain the California Ambient Air Quality Standards for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter less than or equal to 10 microns in diameter, lead, sulfates, hydrogen sulfide, and vinyl chloride.

Table 1-1. Representative Federal and State Regulations

Federal and State Regulation	Typical Activity, or Requirement of Regulation
CAA, 40 CFR Part 51	Gives state and local agencies the authority to establish air quality rules and regulations. Rules adopted by the local air pollution control districts and accepted by the Air Resources Board are included in the State Implementation Plan. When approved by the U.S. EPA, these rules become federally enforceable.
California Integrated Waste Management Act of 1989	Specifies waste reduction mandates for municipal solid waste facilities.
California Hazardous Waste Control Law (HWCL)	Imposes obligations on facilities for the generation of hazardous waste. California's HWCL applies to federal facilities insofar as the law requires permitting, inspections, and monitoring. State waste disposal standards, reporting duties, and submission to state inspections are required of federal facilities.
Porter-Cologne Water Quality Control Act	Protects all waters of the state for the use and enjoyment of the people of California and declares that the protection of water resources be administered by the regional water quality control boards.
California Administrative Code, Sections 66001 through 67181	Contains California's hazardous materials regulations.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This EA evaluates the potential environmental impacts of constructing a new golf course maintenance facility and demolishing or disassembling three existing golf course maintenance facilities at the Marshallia Ranch Golf Course, Vandenberg AFB, California.

2.1.1 Background

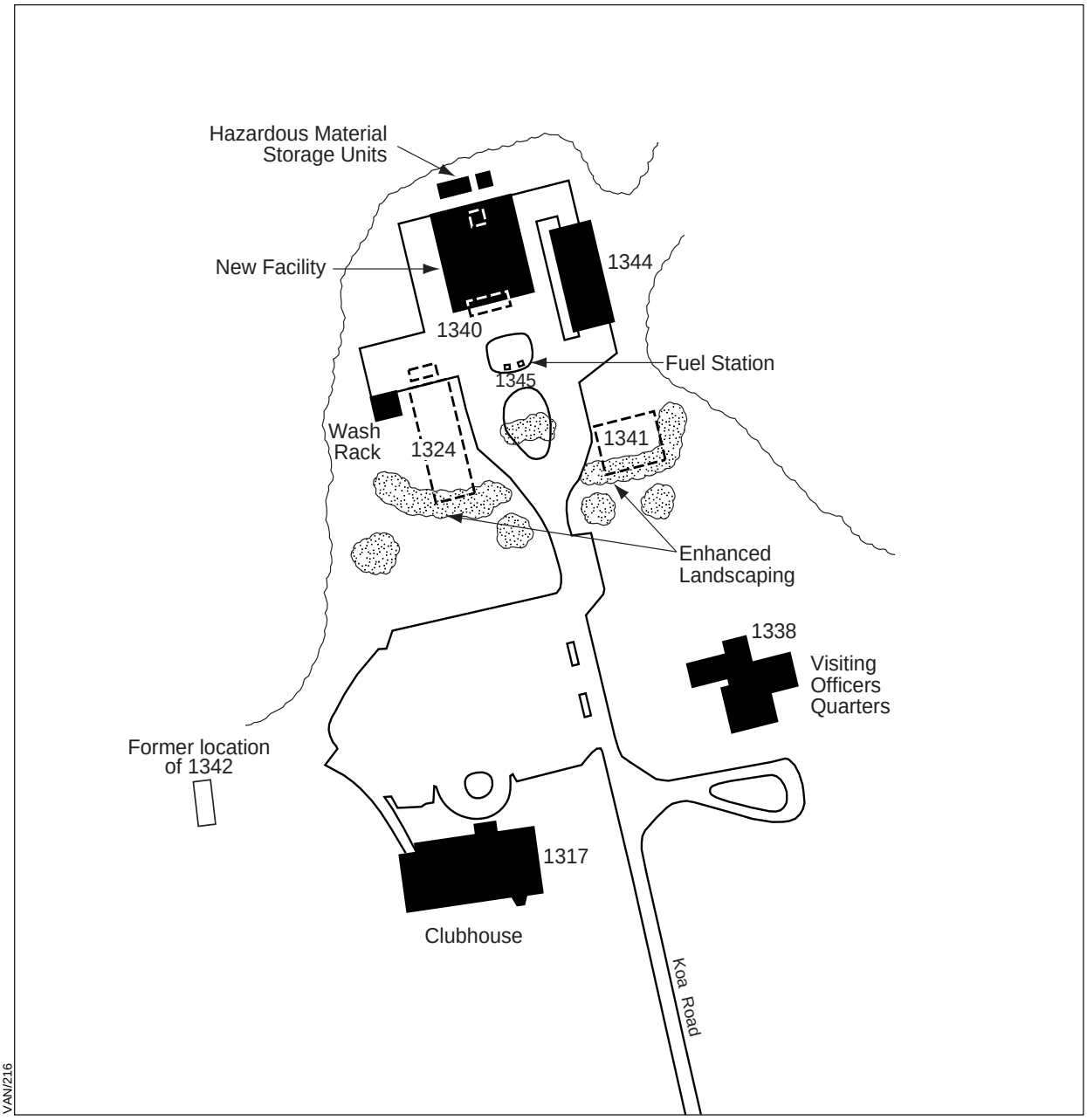
The existing golf course maintenance operation is housed in four main buildings, two of which are in deteriorated condition. The existing buildings have deficiencies and do not accommodate needed activities. Operational inefficiencies result from maintenance activities being segmented and separated into spaces that were not designed to accommodate needed activities. The current location of the golf course maintenance compound is well suited to serve all areas of the golf course. Siting the new facility within the existing compound allows the operation to take advantage of the existing fuel storage and wash rack facilities. Appendix A provides representative photographs of the existing facilities within the golf course maintenance compound.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action includes construction of a new 8,000-square-foot golf course maintenance facility to house existing maintenance operations. The new facility would be situated within the existing golf course maintenance compound and includes an enclosed 4,000-square-foot maintenance facility, two 2,000-square-foot covered storage areas on either side of the structure, and all required paving and landscaping (Figure 2-1). The facility will contain space for an office; maintenance shop; storage for tools, parts, seed, and fertilizer; a locker room with showers and restrooms; and a meeting and break room (Figure 2-2).

After construction activities are completed, Buildings 1324, 1340, and 1341 would be demolished or disassembled (approximately 6,935 total square feet). Activities conducted at these buildings would be moved to the new golf course maintenance facility or to Building 1344. Building 1344 would be retained for use as an enclosed storage structure.

Employment at the golf course maintenance facility would consist of 15 employees who currently operate from Buildings 1324, 1340, 1341, and 1344.



EXPLANATION

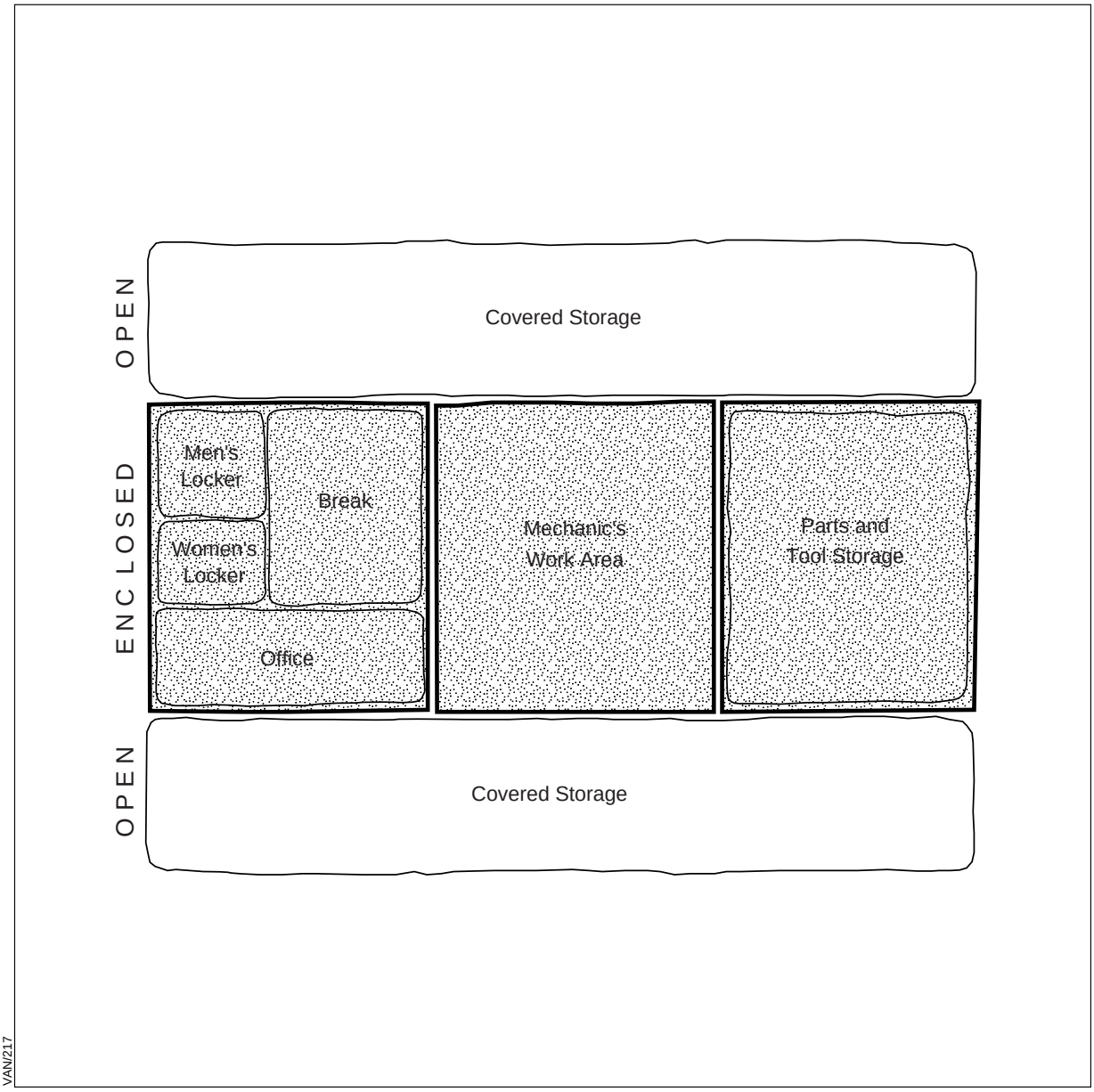
Proposed Building Site Plan

Existing Buildings (to be demolished/disassembled)

Proposed Site Plan
Golf Complex

Source: Evans & Chastain, L.L.P., 1998.

Figure 2-1



Proposed Functional Diagram - Golf Course Maintenance Facility

Source: Vandenberg AFB, 2000b.

Figure 2-2

2.2.1 Facility Construction and Demolition/Disassembly

Construction of the new golf course maintenance facility and demolition or disassembly of the three existing facilities would occur between October 2000 and June 2001. Construction and other ground-disturbing activities would include:

- Construction of approximately 8,000 square feet of new building space (4,000 square feet of this will be covered storage)
- Construction of parking areas
- Demolition or disassembly of three buildings (Buildings 1324, 1340, and 1341) comprising approximately 6,935 square feet of existing building space (see Figure 2-1).

Estimated ground disturbance as a result of construction and demolition/ disassembly activities would be less than 1 acre. Construction employees would access the construction site via San Antonio Road West and Koa Road (see Figure 1-1).

Demolition of Buildings 1324, 1340, and 1341 would result in approximately 6.7 tons of debris (primarily metal and wood), which would require disposal (Table 2-1). Disassembly of these buildings would result in stockpiling of these materials for use at a later date. If present, LBP and asbestos would require abatement prior to demolition or disassembly actions.

Table 2-1. Demolition/Disassembly Debris (tons)

Building No.	Square Footage	Roofing Debris	Metal Debris	Wood Debris	Glass Debris	Total
1324[a]	3,840	0	0.3020	5.2853	0	5.5873
1340[b]	530	0	0.4000	0.0500	0	0.4500
1341[a]	2,565	0	0.0069	0.6930	0	0.6999
Total	6,935	0	0.7089	6.0283	0	6.7372

Notes: (a) Source: Tetra Tech, 1998c.
(b) Estimates based on facility square footage and types of building materials.

The construction contractor would be required to dispose of all construction debris and hazardous waste in accordance with federal, state, and local regulations. If a hazardous materials spill occurs during construction, it would be cleaned up by the construction contractor. If asbestos, LBP, or other hazardous materials are identified that cannot be avoided in areas proposed for construction or demolition/disassembly, removal and disposal would be conducted by a

certified contractor in accordance with applicable federal, state, and local regulations.

2.2.2 Facility Design and Operation

The golf course maintenance facility would be within the current golf course maintenance compound north of the Marshallia Ranch Golf Course Clubhouse (see Figure 2-1). The structure would be 1 story in height (approximately 27 feet tall) and designed to be aesthetically compatible with the golf course clubhouse, which is approximately 300 feet south of the golf course maintenance compound. In addition, an earthen berm and landscape vegetation would be incorporated to help screen views of the maintenance compound from adjoining areas.

The new facility would serve a maintenance and administrative function and would operate primarily during normal day-shift working hours. Once operational, the new facility would be utilized by the 15 current golf course maintenance employees.

A 1,000-gallon motor gasoline (MOGAS) aboveground storage tank (AST) and a 1,000-gallon diesel fuel AST are situated within the golf course maintenance compound to refuel equipment. The 1,000-gallon MOGAS tank would be replaced with a 250-gallon AST.

Minor equipment maintenance activities (e.g., oil changes) would be conducted at the new facility or within Building 1344. Small quantities of hazardous materials and hazardous waste would be utilized and generated during equipment maintenance operations. Appropriate control measures would be in place to prevent or control any accidental releases. Hazardous waste generated would be collected on a daily basis and transported to an approved satellite accumulation point (SAP) (most likely situated at the on-base auto hobby shop) for disposal.

Access to the site would be provided via San Antonio Road West and Koa Road. A parking area for approximately 20 vehicles would be associated with the facility to accommodate employees and visitors. Approximately 40 daily vehicle trips would occur under the Proposed Action; this traffic volume would not represent an increase in the overall daily traffic.

During operation, the activities associated with the Proposed Action are not expected to increase the daily utility demands. Connection to existing utility systems would be required to provide service to the new maintenance facility.

The new facility is scheduled to begin operation in July 2001.

2.3 DESCRIPTION OF ALTERNATIVES TO THE PROPOSED ACTION

2.3.1 No-Action Alternative

Under the No-Action Alternative, a new golf course maintenance facility would not be constructed. Golf course maintenance activities would continue from the existing golf course maintenance facilities (Buildings 1324, 1340, 1341, and 1344). No construction, demolition, or soil disturbance would occur.

2.3.2 Alternatives Considered but Eliminated from Further Study

One other alternative was considered. This involved construction of a 9,150-square-foot golf course maintenance facility with all necessary utility connections. After construction was completed, former maintenance Buildings 1324, 1340, 1341, and 1344 would be demolished, as would Building 1342 (golf cart facility), west of the golf course clubhouse. This alternative was eliminated from further consideration because, although it is similar to the Proposed Action, the Proposed Action is more cost effective and better suits the needs of the golf course. No other alternatives were considered for improving the golf course maintenance facility.

2.4 COMPARISON OF ENVIRONMENTAL IMPACTS

This section presents a comparative analysis of the Proposed Action to the No-Action Alternative. A detailed discussion of potential effects is presented in Chapter 3.0, Affected Environment and Environmental Consequences. Neither the Proposed Action nor the No-Action Alternative is anticipated to have a significant impact on the environment.

Proposed Action. No hazardous materials/waste management impacts would occur from construction and operation activities. Any hazardous substances utilized or generated during construction and operation of the new facility or encountered during demolition/disassembly activities (i.e., asbestos, lead-based paint) would be managed in accordance with applicable regulations. Construction activities could increase the potential for soil erosion. However, standard construction practices would be implemented to reduce erosion potential. No surface water resources are near the proposed development site, and no increase in water use would occur with the new facility (no increase in employees at the new facility). No significant impacts to physical resources are expected. Air quality impacts associated with the project are anticipated to be negligible. During construction, a potential exists for short-term impacts to local air quality from fugitive dust; however, dust could be controlled by the application of water. No increase in vehicular emissions would be experienced because there would be no change in employment.

Vegetation losses would be less than 1 acre as a result of construction and paving. The vegetation that would be disturbed consists of early successional exotic species, which are of little ecological value. No wetlands are near the site of the proposed facility or the three facilities to be demolished or disassembled. No threatened and endangered species exist on the site. A bat species inventory indicated that Building 1324 was used as a night roost by Mexican free-tailed bats and as a day roost by big brown bats. A large day roost (500+) of big brown bats was also identified in Building 1341. Buildings 1324 and 1341 may also be used by two state-listed special concern species, the pallid bat and Townsendi big-eared bat. Demolition/disassembly activities would displace them from their current roosts. Prior to demolition/disassembly activities, a qualified biologist would survey the buildings to determine if bats are roosting. If bats are roosting, an alternate bat roost could be constructed away from high human activity and passive exclusion could be implemented to allow the bats to leave the building but exclude them from returning.

An archaeological survey of the proposed development site conducted in March 2000 identified prehistoric and historic material. It was determined that, based on the types of cultural material identified, no additional studies would be required. However, because of the potential for additional cultural material to be uncovered during project activities, an archaeological monitor and a Native American monitor will be on site during excavation activities associated with proposed facility construction and demolition/disassembly activities. In compliance with the National Historic Preservation Act (NHPA), the Air Force has initiated the Section 106 review process with the California State Historic Preservation Officer (SHPO) for concurrence on this issue. Should significant subsurface deposits be uncovered during construction, work would stop and the California SHPO would be notified.

Buildings 1324 and 1341 (scheduled for demolition or disassembly) are listed in Vandenberg AFB real estate records as being constructed during the World War II era; however, historic and documentary evidence indicate that Building 1324 was built between 1906 and 1910, and Building 1341 was probably built between 1933 and 1935. A historic building inventory and evaluation of facilities within the golf course maintenance compound determined that none of the buildings is eligible for listing in the National Register of Historic Places (National Register). Vandenberg AFB staff would consult with the California SHPO and the Advisory Council on Historic Preservation early in the project (36 CFR Part 800) to reduce conflicts and delays.

No-Action Alternative. Under the No-Action Alternative, no construction, demolition, or soil disturbance would occur. No significant impacts are anticipated to hazardous materials/waste management, physical resources, air quality, biological resources, or cultural resources from the No-Action Alternative.

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3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This section describes the existing environmental conditions at Vandenberg AFB. The environmental components addressed include relevant natural or human environments that are likely to be affected by the Proposed Action and No-Action Alternative.

This section also presents the results of the analysis of potential environmental effects of implementing the Proposed Action and No-Action Alternative. Changes to the natural and human environments that may result from the Proposed Action and No-Action Alternative were evaluated relative to the existing environment. For each environmental component, anticipated effects were quantitatively and qualitatively assessed, considering the long-term project effects. The potential for significant environmental consequences was evaluated utilizing the context and intensity considerations as defined in CEQ regulations for implementing the procedural provisions of NEPA (40 CFR Part 1508.27).

Based upon the nature of the Proposed Action, it was determined that the potential exists for the following resources to be affected: solid waste management, hazardous materials management, hazardous waste management, AOC sites, storage tanks, asbestos, LBP, pesticide usage, soils and geology, air quality, biological resources, and cultural resources.

3.2 LOCAL COMMUNITY

Vandenberg AFB is north and west of the city of Lompoc, California, in western Santa Barbara County (see Figure 1-1). The base covers approximately 98,000 acres and is headquarters for the 30th Space Wing. The Marshallia Ranch Golf Course is situated on the north-central portion of the base with access via San Antonio Road West and Koa Road. The regional climate is considered Mediterranean with cool, wet winters and warm, dry summers.

3.2.1 Solid Waste Management

Affected Environment

The Vandenberg AFB landfill is a 187-acre Class III waste management facility operated and managed by the 30 CES/CEOHH, Horizontal Construction. The base landfill contains four areas of disposal (active landfill, nonfriable asbestos disposal area, animal cemetery, and wood yard) and accepts residential,

commercial, and industrial garbage, rubbish, and inert waste (demolition materials such as dirt, rock, and concrete). The landfill is permitted to accept up to 400 tons per operating day of general, nonhazardous waste. The average daily quantity of solid waste received is between 40 and 60 tons. In 1998, the estimated remaining capacity of the landfill was approximately 2.464 million cubic yards (Tetra Tech, 1998c).

Environmental Consequences

Proposed Action. Demolition of Buildings 1324, 1340, and 1341 would result in approximately 6.7 tons of debris (primarily metal and wood) that would require disposal (Table 3-1). Disassembly of these buildings would result in these materials being stockpiled for use at a later date. Buildings with the potential to contain asbestos and/or LBP (Buildings 1324 and 1344) would be sampled prior to demolition or disassembly activities to ensure proper disposal and abatement of these materials.

Table 3-1. Demolition/Disassembly Debris (tons)

Building No.	Square Footage	Roofing Debris	Metal Debris	Wood Debris	Glass Debris	Total
1324[(a)]	3,840	0	0.3020	5.2853	0	5.5873
1340[(b)]	530	0	0.4000	0.0500	0	0.4500
1341[(a)]	2,565	0	0.0069	0.6930	0	0.6999
Total	6,935	0	0.7089	6.0283	0	6.7372

Notes: (a) Source: Tetra Tech, 1998c.
(b) Estimates based on facility square footage and types of building materials.

The construction contractor would be required to dispose of all construction debris in accordance with federal, state, and local regulations.

Debris from construction projects is typically uncontaminated and is reused or recycled whenever possible; the remainder of the material would be landfilled. Debris from demolition activities is often contaminated with nails, rebar, or other building materials that make reuse or recycling more difficult. Concrete generated from demolition projects would be taken to the concrete rubble yard where it would be processed and stockpiled for future use. Materials such as wood, metal, and glass would either be disposed of in the landfill or recycled as appropriate. Asphalt would be taken to a storage yard and stockpiled for processing and reuse or removal for off-site recycling.

Demolition - Because there is no charge for waste disposed of in the base landfill, it is more economical to dispose of waste than it is to separate each material type from demolition debris and recover it for reuse or recycling. However, the 30th Space Wing Solid Waste Management Plan indicates that all

solid waste material shall be segregated on the job site to better facilitate reuse and recycling.

Disassembly - Disassembly entails separating reusable or recyclable materials from buildings or structures being demolished. Materials that can be reused or recycled include concrete, asphalt, glass, wood, and metal. Disassembly and subsequent reuse and recycling of the recovered material would reduce disposal of waste in the base landfill, thereby increasing its longevity.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

No-Action Alternative. Under the No-Action Alternative, no construction or demolition/disassembly activities would occur; therefore, no significant impacts to solid waste management are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

Hazardous materials and hazardous waste management activities at Vandenberg AFB are governed by specific environmental regulations. For the purpose of the following analysis, the term "hazardous material" or "hazardous waste" will refer to those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9601 et seq., as amended, and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901-6992, as amended. In general, these include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment when released into the environment. The state regulations, which are at least as stringent as the federal regulations, are found in the California Code of Regulations (CCR), Title 22, Section 30.

The region of influence (ROI) for hazardous materials and hazardous waste encompasses those areas that could potentially be exposed to a release during construction and demolition/disassembly activities and during operation of the new facility.

3.3.1 Hazardous Materials Management

Affected Environment

Hazardous materials usage at Vandenberg AFB is regulated by Air Force Occupational Safety and Health Standard 161-21, Hazard Communication. The golf course maintenance area maintains a Spill Prevention Control and Countermeasures Plan (SPCCP) that establishes responsibilities and provides prevention guidelines, as well as contingency plans in the event of a hazardous materials release.

The use of hazardous materials on Vandenberg AFB where construction and demolition/disassembly activities are proposed is minimal. The hazardous materials most commonly used at the facilities proposed for demolition/ disassembly include small quantities of adhesives; antifreeze; batteries; greases; household products; motor fuels; paints; pesticides; petroleum, oil, and lubricants (POL); and solvents. These materials are used during operation and maintenance of equipment.

Environmental Consequences

Proposed Action. During construction and demolition/disassembly activities, small amounts of hazardous materials are expected to be utilized, and the potential for spills would exist. Hazardous materials likely to be utilized during construction and demolition/disassembly activities include adhesives, corrosives, motor fuels, paints, POL, solvents, and household products. The types and quantities of hazardous materials used during operation of the new facility would not change from those currently being used at the existing facility. All storage, handling, and transportation of hazardous materials associated with construction and operation of the new facility would be conducted in accordance with applicable regulations and established procedures. The new facility would be incorporated into the SPCCP, which establishes responsibilities, requirements, and contingency plans in the event a release occurs; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

No-Action Alternative. Under the No-Action Alternative, no construction or demolition/disassembly activities would be conducted. Hazardous materials would continue to be utilized in accordance with applicable regulations and established procedures. Operations would continue under the existing SPCCP; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.3.2 Hazardous Waste Management

Affected Environment

Management of hazardous waste generated at Vandenberg AFB is outlined in the Hazardous Waste Management Plan. In addition, the golf course maintenance area maintains an SPCCP that establishes responsibilities and contingency plans in the event a release occurs.

Hazardous waste generated at the golf course maintenance compound (e.g., used oil, oily rags) is stored at an approved SAP in Building 1344. An SAP may store up to 55 gallons of hazardous waste for an indefinite period of time. However, upon reaching the 55-gallon limit, the waste must be transferred to a 90-day accumulation point or disposed of off base. A private contractor is used to remove and dispose of hazardous waste accumulated at the golf course maintenance compound.

Environmental Consequences

Proposed Action. During construction and demolition/disassembly activities, hazardous waste would be generated. The construction contractor would be responsible for following applicable regulations for the management of hazardous waste. Any spills would be cleaned up by the construction contractor. The construction contractor would be responsible for the proper disposal of any hazardous waste (including demolition debris) generated on the property in accordance with applicable regulations.

During operation of the new facility, hazardous waste would be generated from the hazardous materials and the processes that utilize those materials. Most of the hazardous materials utilized would be consumed during use (e.g., fuels, paint); as a result, only small amounts of waste adhesives, corrosives, motor fuels, paints, POL, and solvents would be generated. It is estimated that less than 100 gallons of used oil would be generated annually during routine maintenance of vehicles (i.e., oil changes). The existing SAP within Building 1344 would be formally closed and removed from the golf course maintenance compound. Hazardous waste generated would be collected on a daily basis and transported to an approved SAP (most likely at the on-base auto hobby shop) for proper disposal. The new facility would be incorporated into the SPCCP. Hazardous waste management in accordance with applicable regulations would preclude any significant impacts.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

No-Action Alternative. Under the No-Action Alternative, no construction or demolition/disassembly activities would be conducted. Hazardous waste would continue to be generated and disposed of in accordance with applicable regulations and established procedures. Operations would continue under the existing SPCCP; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.3.3 Area of Concern Sites

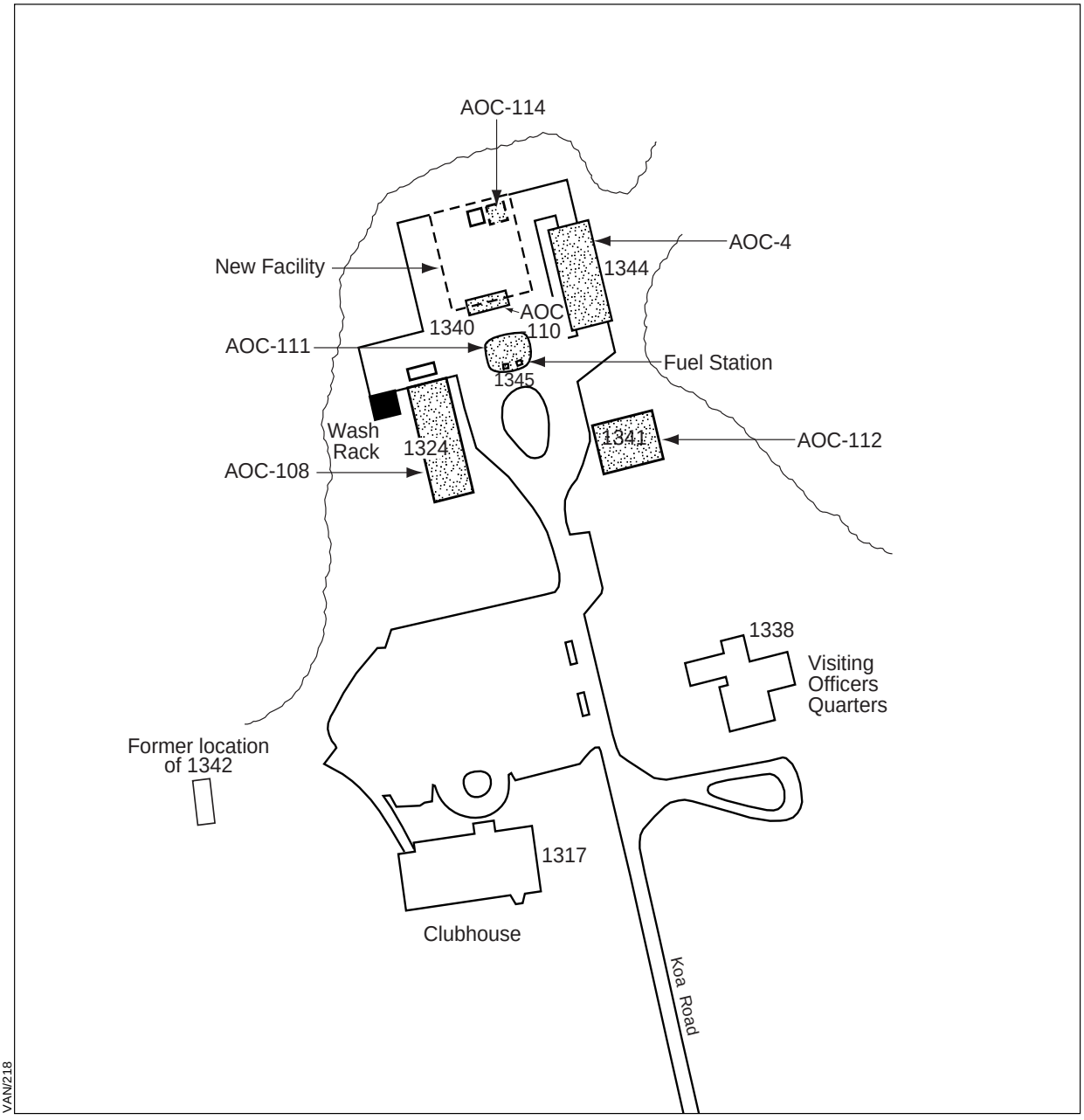
Affected Environment

There are six AOC sites within the golf course maintenance compound (Figure 3-1). Of these sites, AOC-4 (Building 1344), -108 (Building 1324), -110 (Building 1340), and -114 (tt-18-area-8) have been recommended for no further action because contaminant concentrations are below action levels. AOC-111 (Building 1345 [fuel storage area]) and -112 (Building 1341) have been recommended for further investigation based on preliminary site investigation findings. Table 3-2 presents a summary of the AOC sites within the golf course maintenance compound.

Environmental Consequences

Proposed Action. The U.S. Air Force is committed to cleaning up AOC sites at Vandenberg AFB. Two AOC sites (AOC-111 and -112) have been identified as requiring further action. These sites will continue to be investigated and remediated, if necessary, in accordance with applicable regulations. Because these sites are not in the immediate vicinity of the proposed golf course maintenance facility, further investigative or clean up activities should not affect the construction schedule. Investigation of AOC-112 was recommended after demolition of Building 1341 (see Table 3-2).

The type of development that is appropriate for property adjacent to or situated upon an AOC site may be limited by the risk to human health and the environment posed by contaminants at the site. The risk posed by AOC sites is measured by a risk assessment that analyzes the types of substances present at a site and the potential means by which the public and the environment may be exposed to them.



EXPLANATION

Proposed Building Site Plan

Existing Buildings

Area of Concern Site

Source: Tetra Tech, 1998a.

Areas of Concern Sites

Figure 3-1

Table 3-2. Area of Concern Site Descriptions

Site Number	Site Name	Status	Description
AOC-4	Building 1344	Contaminant concentrations are below action levels; therefore, no further action has been recommended.	AOC-4 includes the wash down area near Building 1344, which was used to sharpen mower blades and to wash pesticide application equipment. Building 1344 has also been used for maintenance of equipment since 1972.
AOC-108	Building 1324	Contaminant concentrations are below action levels; therefore, no further action has been recommended.	AOC-108 includes the wash rack that is adjacent to Building 1324. The wash rack, which has been replaced with a closed-loop system, was used to mix pesticides and wash down pesticide application equipment. The wash rack drained to a culvert that was connected to the storm drainage system.
AOC-110	Building 1340	Contaminant concentrations are below U.S. EPA Region 9 PRGs; therefore, no further action has been recommended.	AOC-110 includes Building 1340, constructed in 1980 for pesticide storage.
AOC-111	Building 1345	Contaminant (TPH) concentrations are above action levels; therefore, recommendations presented in the 1998 site assessment include a secondary spill containment system be constructed and further investigation be conducted to assess the extent of contamination under the asphalt and concrete foundation of the AST.	AOC-111 includes the area surrounding the diesel fuel AST. The soil beneath the diesel AST spigot was noted to be stained. There is no protective asphalt or concrete below the spigot to prevent leaking fluid from entering the soil.
AOC-112	Building 1341	Contaminant (diesel fuel, chlordane, and lead) concentrations are above action levels; therefore, recommendations presented in the 1998 site assessment include further investigation of the floor drain after demolition.	AOC-112 includes Building 1341 as it is used for minor maintenance and equipment storage. Historically, the building was used as a barn. The floor drain in the building is assumed to flow to the storm drain system.
AOC-114	tt-18-area-8	Contaminant concentrations are below action levels; therefore, no further action has been recommended.	AOC-114 is a concrete pad that was used prior to 1990 as a hazardous waste SAP. The site is within a fenced area within the golf course maintenance compound. Stains were noted during the Preliminary Assessment site reconnaissance.

AOC = Area of Concern
AST = aboveground storage tank
EPA = Environmental Protection Agency
PRG = Preliminary Remediation Goal
SAP = satellite accumulation point
TPH = total petroleum hydrocarbons

Source: Tetra Tech, 1998a.

Use of the areas affected by AOC sites may be restricted by the extent and type of contamination, and by current and future AOC remediation activities. Based on the results of AOC investigations, the Air Force may, where appropriate, place limits on property use. Because the AOC sites are within the golf course maintenance compound and future land use within the compound will remain the same, no land use restrictions would be anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

No-Action Alternative. Under the No-Action Alternative, no construction or demolition/disassembly activities would occur; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.3.4 Storage Tanks

Affected Environment

There are no underground storage tanks associated with facilities within the golf course maintenance compound. There is a 1,000-gallon MOGAS AST and a 1,000-gallon diesel fuel AST within the golf course maintenance compound that are used to refuel equipment. The golf course maintenance area maintains an SPCCP that establishes responsibilities and provides prevention guidelines, as well as contingency plans to be utilized in the event of a release.

ASTs are regulated under the California Health and Safety Code, Division 20, Section 6.67.

Environmental Consequences

Proposed Action. Under the Proposed Action, the 1,000-gallon MOGAS AST would be removed and replaced with a 250-gallon AST. The 1,000-gallon diesel fuel AST would continue to be utilized as is. These two ASTs would be subject to applicable federal, state, and local regulations. Management of the storage tanks in accordance with applicable regulations would minimize the potential for impacts. In addition, the new AST would be incorporated into the SPCCP; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

No-Action Alternative. Under the No-Action Alternative, the two existing ASTs would continue to be utilized and managed in accordance with applicable regulations and the current SPCCP; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.3.5 Asbestos

Affected Environment

Asbestos-containing material (ACM) and ACM abatement are regulated by the U.S. Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA). The state of California also has regulations pertaining to ACM abatement that are enforced by the California EPA/ Department of Toxic Substances Control (DTSC). Emissions of asbestos fibers into the ambient air are regulated in accordance with Section 112 of the Clean Air Act (CAA), which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). The NESHAP addresses the demolition or renovation of buildings containing ACM. The Asbestos Hazard Emergency Response Act (AHERA) (Public Law [P.L.] 99-519 and P.L. 101-637) provide the regulatory basis for handling ACM in kindergarten through 12th grade school buildings. AHERA and OSHA regulations cover worker protection for employees who work near or abate ACM.

Renovation or demolition of buildings with ACM may release asbestos fibers into the air. Asbestos fibers could be released as a result of disturbance or damage of various building materials, such as pipe insulation, acoustical ceilings, and wallboard.

The current Air Force practice is to manage or abate ACM in active facilities, and to abate ACM per regulatory requirements prior to facility demolition. Abatement of ACM occurs when there is a potential for asbestos fiber releases that would affect the environment or human health.

An ACM inspection would be required prior to implementing demolition/ disassembly activities. An asbestos survey of Building 1341 has been conducted. Sample results indicate the presence of ACM in the form of floor tile. Other building materials sampled included floor tile mastic, acoustical tile, and wallboard; no ACM was identified in these building materials. No record of

ACM surveys was identified for Buildings 1324, 1340, and 1344. Because Building 1340 is a metal shed, ACM is not expected to be present.

Environmental Consequences

Proposed Action. Under the Proposed Action, demolition/disassembly of existing structures (Buildings 1324, 1340, and 1341) that contain or potentially contain ACM would occur. An ACM inspection would be required prior to implementing demolition/disassembly activities. Abatement activities would be conducted in accordance with applicable federal and state regulations to minimize potential risk to human health and the environment. Demolition debris that contains ACM would be disposed of in a landfill permitted to accept this type of material. No significant impacts are anticipated.

Mitigation Measures and Best Management Practices. Coordination of ACM abatement or management in conjunction with demolition/disassembly activities would preclude the need for mitigation measures.

No-Action Alternative. Under the No-Action Alternative, facilities proposed for demolition/disassembly would continue to be utilized. Management of ACM in these facilities would be conducted in accordance with Air Force policy to minimize risk to human health and the environment. No significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.3.6 Lead-Based Paint

Affected Environment

Lead is a heavy ductile metal commonly found in association with organic compounds, as well as in oxides, salts, or as metallic lead. Human exposure to lead has been determined to be an adverse health risk by agencies such as OSHA and the U.S. EPA. Sources of exposure to lead are through paint, dust, and soil. In 1978, the Consumer Product Safety Act (P.L. 101-608 as implemented by 16 CFR Part 1303) lowered the allowable lead level in paint to 0.06 percent by weight in a dry film of newly applied paint. Lead-based paint is not regulated until it becomes waste for disposal, such as during demolition or renovation of a building. Hazardous waste containing lead is disposed of in accordance with 40 CFR Part 260 et seq. and 29 CFR Part 1910.120.

No comprehensive survey to assess the presence of lead-based paint or its associated soil contamination has been performed at the facilities in the golf course maintenance compound (Buildings 1324, 1340, 1341, and 1344). Lead-based paint may be present in Buildings 1324, 1341, and 1344 because they were constructed prior to 1978. Building 1340 was constructed in 1980 and is not expected to contain lead-based paint.

Environmental Consequences

Proposed Action. The Proposed Action would involve the demolition/ disassembly of existing structures that may contain lead-based paint (Buildings 1324, 1340, and 1341). A lead-based paint inspection would be required prior to implementing demolition/disassembly activities. Demolition/disassembly activities would be conducted in accordance with applicable federal and state regulations to minimize potential risks to human health and the environment. Any lead-based paint waste would be disposed of in a landfill permitted to accept this type of material. No significant impacts are anticipated.

Mitigation Measures and Best Management Practices. Coordination of lead-based paint removal in conjunction with demolition/disassembly activities would preclude the need for mitigation measures.

No-Action Alternative. Under the No-Action Alternative, facilities proposed for demolition/disassembly would continue to be utilized. Management of lead-based paint in these facilities would be accomplished to minimize risk to human health and the environment. No significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.3.7 Pesticide Usage

Affected Environment

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. Section 136, regulates the registration and use of pesticides. Pesticide management activities are subject to federal regulations contained in 40 CFR Parts 162, 165, 166, 170, and 171. Implementation of federal regulations by the state are found under Title 3, Chapter 4 of the CCR.

Only small quantities of pesticides (approximately a 3-month supply) are stored in the golf course maintenance compound. Pesticides currently listed as being stored in the golf course maintenance compound include Aliette®, Bayleton 25®, Bensumec 4LF®, Daconil®, Fungicide VII, Fungicide X, Gopher Bait II,

Dursban®, Ornamec®, Orthene TTO®, Roundup®, Sencor 75®, Subdue 2E®, Surflan A.S. ®, Trimec®, Turflon®, and ZP Gopher bait®.

Pest management activities at the golf course maintenance compound are conducted in accordance with Air Force Instruction (AFI) 32-1053 and management recommendations that follow FIFRA regulations. Pesticide application is conducted in accordance with applicable laws and label directions.

Environmental Consequences

{PRIVATE }Proposed Action{tc "4.3.1.6 Pesticides"}. Pesticide usage associated with the Proposed Action would not change from current conditions. Management practices would be subject to FIFRA and state regulations to ensure the proper and safe handling of all chemicals; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

{PRIVATE }No-Action Alternative{tc "4.3.5.6 Pesticides"}. Pesticide usage associated with the No-Action Alternative would not change from current conditions. Management practices would be subject to FIFRA and state regulations to ensure the proper and safe handling of all chemicals; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.4 NATURAL ENVIRONMENT

This section describes the affected environment for soils and geology, air quality, biological resources, and cultural resources.

3.4.1 Soils and Geology

Affected Environment

Soils. Based on soil borings excavated at the project site, the soil profile consists of slightly silty sand and poorly graded sand with silt to a depth ranging from 2 to 6 feet below the existing grade. This material is underlain by fine- to coarse-grained diatomaceous clayey gravel and clayey sand that is further underlain by highly weathered and fractured diatomaceous siltstone classified as clayey silt (Testing Laboratories, Inc., 2000).

The surficial silty and poorly graded sand stratum is nonexpansive; however, the underlying clayey sand and siltstone are considered to be moderately to highly expansive (Testing Laboratories, Inc., 2000).

Geology. The golf course maintenance compound is situated on San Antonio Terrace, a marine terrace that slopes gently towards the west. The lithology of San Antonio Terrace comprises the Miocene Sisquoc Formation, Pliocene Carreage Sand, and Pleistocene Paso Robles Formation, and is capped in some areas by Pleistocene to Holocene Orcutt Sands. The Miocene Sisquoc Formation claystone consists of the Todos Santos Member and a diatomaceous claystone. The Carreage Sand is a Pliocene regressive sequence of marine sand that overlies the Sisquoc Formation in the eastern half of San Antonio Terrace. The Paso Robles Formation consists of alluvial and conglomerate sediments. Orcutt Sands form the cap deposit throughout most of San Antonio Terrace (Montgomery Watson, 2000).

The project site is situated within a seismically active area. Because groundwater is not encountered within 50 feet of the ground surface and the soils are well-consolidated and underlain by weathered bedrock, the potential for liquefaction or seismically induced settlement at the site is considered very low to not probable (Testing Laboratories, Inc., 2000).

Environmental Consequences

Proposed Action. Construction and demolition/disassembly activities would disturb less than 1 acre. Removal of vegetative cover and grading activities associated with the construction activities could increase the potential for erosion effects. However, these impacts would be short-term and minimal because the disturbed areas would be landscaped or paved when construction activities are completed.

Standard construction practices would be implemented to limit soil erosion during construction activities. During construction, the length of time vegetation or other cover is absent would be minimized. Standard construction practices that could be implemented to prevent potential soil erosion include:

- Add protective cover, such as mulch or straw, to exposed soil.
- Implement site-grading procedures that limit the time soils are exposed prior to being covered by impermeable surfaces or vegetation.
- Implement storm water diversions to reduce water flow through exposed sites.

- Implement temporary impoundments to catch soil eroded from the site before it flows into the drainage network.

Because less than 1 acre of soil disturbance would occur, construction and operations activities would not require an NPDES permit for storm water runoff.

Earthquake engineering would be taken into account, in accordance with the Uniform Building Code standards for seismic zoning, during the design of the facility.

Mitigation Measures and Best Management Practices. Use of standard construction practices would preclude the need for mitigation measures for potential soil erosion during construction activities.

No-Action Alternative. Under the No-Action Alternative, no ground-disturbing activities would occur. No significant impacts to soils and geology would be expected.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.4.2 Air Quality

Affected Environment

The federal Clean Air Act (CAA), 42 U.S.C. 7401-7671(q), amended in November 1990, provides that emission sources must comply with the air quality standards and regulations that have been established by the federal, state, and county regulatory agencies. These standards and regulations focus on (1) the maximum allowable ambient pollutant concentrations, and (2) the maximum allowable emissions from individual sources.

The U.S. EPA established the federal standards for the permissible levels of certain pollutants in the atmosphere. The National Ambient Air Quality Standards (NAAQS) have been established for six criteria pollutants: ozone, nitrogen dioxide (NO_2), particulate matter equal to or less than 10 microns in diameter (PM_{10}), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Table 3-3).

The U.S. EPA has revised the NAAQS. New standards for ozone and particulate matter were published in the Federal Register on July 18, 1997. The new particulate standards are for particulates equal to or less than 2.5 microns in diameter ($PM_{2.5}$). The new ozone standard is 0.08 ppm, or 157 micrograms per cubic meter ($\mu g/m^3$), based on the 3-year average of the fourth highest

Table 3-3. National and California Ambient Air Quality Standards

{PRIVATE }{PRIVATE } Pollutant	Averaging Time	Primary[a,b]	Secondary[a,c]	California Standards
Ozone	1 hour	0.12 ppm[d] (235 µg/m^3)	Same as primary standard	0.09 ppm (180 µg/m^3)
	8 hours	0.08 ppm (157 µg/m^3)	Same as primary standard	Same as primary standard
Carbon monoxide	8 hours	9 ppm (10,000 µg/m^3)	---	Same as primary standard
	1 hour	35 ppm (40,000 µg/m^3)	Same as primary standard	20 ppm (23,000 µg/m^3)
Nitrogen dioxide	Annual	0.053 ppm (100 µg/m^3)	Same as primary standard	Same as primary standard
	1 hour	---	---	0.25 ppm (470 µg/m^3)
Sulfur dioxide	Annual	0.03 ppm (80 µg/m^3)	---	Same as primary standard
	24 hours	0.14 ppm (365 µg/m^3)	---	0.04 ppm (105 µg/m^3)
	3 hours	---	0.5 ppm (1,300 µg/m^3)	---
	1 hour	---	---	0.25 ppm (655 µg/m^3)
$PM_{2.5}$	Annual Mean	15 µg/m^3	Same as primary standard	Same as primary standard
	24-hour average	65 µg/m^3	Same as primary standard	Same as primary standard
PM_{10}	Annual Mean	50 µg/m^3[e]	Same as primary standard	30 µg/m^3[f]
	24-hour average	150 µg/m^3	---	50 µg/m^3
Lead	30-day average	---	---	1.5 µg/m^3
	Quarterly	1.5 µg/m^3	Same as primary standard	Same as primary standard
Hydrogen sulfide	1 Hour	---	---	0.03 ppm (42 µg/m^3)
Sulfates	24 Hours	---	---	25 µg/m^3
Visibility reducing particles[g]	8 Hours (10 a.m. to 6 p.m.)	---	---	In sufficient amount to produce an extinction coefficient of 0.23 per km due to particles when the relative humidity is less than 70%.

Notes: National standards, other than ozone and those based upon annual averages or annual arithmetic means, are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year, with maximum hourly average concentrations above the standard, is equal to or less than one.

(a) Equivalent units given in parentheses are based on a reference temperature of 25 °C and a reference pressure of 760 millimeters (1,013.2 millibars) of mercury. All measurements of air quality are to be corrected to a reference temperature of 25 °C and a reference pressure of 760 millimeters of mercury; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

(b) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

(c) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

(d) The ozone 1-hour standard applies only to areas that were designated as in nonattainment.

(e) Calculated as arithmetic mean.

(f) Calculated as geometric mean.

(g) This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range when relative humidity is less than 70%.

µg/m^3= micrograms per cubic meter
$PM_{2.5}$= particulate matter equal to or less than 2.5 microns in diameter
PM_{10}= particulate matter equal to or less than 10 microns in diameter
ppm = parts per million

Source: CAA Title 42 U.S.C. Sections 7401-7671.

8-hour average. The previous 1-hour standard remains in effect until the area is in attainment. Both new standards are listed in Table 3-3.

California has also established its own air quality standards, known as the California Ambient Air Quality Standards (CAAQS). CAAQS are generally more stringent than the NAAQS and have incorporated additional standards for sulfates, hydrogen sulfide, and visibility-reducing particulate matter. The NAAQS and CAAQS are presented in Table 3-3.

For purposes of air quality analysis, the ROI for criteria pollutant emissions and ozone (volatile organic compounds [VOCs] and nitrogen oxides [NO_X]) precursors would generally include Vandenberg AFB and the surrounding portions of Santa Barbara County north of the Santa Ynez Mountains. Project emissions of CO, VOCs, and NO_X are compared to baseline emissions to determine if they are regionally significant.

The U.S. EPA classifies air quality within each Air Quality Control Region with regard to its attainment of federal primary and secondary NAAQS. According to U.S. EPA guidelines, an area with air quality better than the NAAQS for a specific pollutant is designated as being in attainment for that pollutant. Any area not meeting ambient air quality standards is classified as being in nonattainment. When there is insufficient data for the U.S. EPA to define an area, the area is designated unclassified and treated as an attainment area until proven otherwise. Pollutant concentrations within the Santa Barbara Air Basin atmosphere are assessed relative to the federal and state ambient air quality standards.

The Santa Barbara County Air Pollution Control District (SBCAPCD) is required to monitor air pollutant levels to ensure federal and state ambient air quality standards are met. If ambient air quality standards are not met, SBCAPCD must develop a plan to meet them. If regional air quality contains pollutant levels violating these standards, the area is classified as a "nonattainment" area.

Santa Barbara County is in attainment of all standards except the federal and state ozone standards, and the state standard for PM_{10}. The following text addresses Santa Barbara County's air quality nonattainment for these two pollutants and the environmental and source factors contributing to this nonattainment status.

Ozone Nonattainment. Ozone is not produced directly by any pollutant source. Instead, it is formed by a reaction between NO_X and reactive organic compounds (ROCs) in the presence of sunlight. A reduction in ozone is dependent on a reduction in NO_X and ROC emissions. Reduction of these pollutants has the added benefit of reducing the concentration of PM_{10} (Tetra Tech, 1998b).

Santa Barbara County's air quality has historically violated both CAAQS and NAAQS ozone air quality standards. The severity of the ozone violation for the County is classified as "serious" by both the federal and state governments. Santa Barbara is in "serious" nonattainment as a result of missing the deadline to meet the federal ozone standard, regardless of the overall trend of improved air quality of the Santa Barbara Region.

PM_{10} Nonattainment. The largest source of PM_{10} emissions in the county is entrained paved road dust. Other sources of PM_{10} emissions include dust from construction and demolition, agricultural activities, entrained road dust from unpaved roads, natural dust, and particulate matter released during combustion.

Santa Barbara County exceeds the CAAQS for PM_{10} for 24-hour and annual standards. Exceedances of the annual standard predominantly occur at the downtown Santa Maria monitoring station. Exceedances of the 24-hour standard are more widespread across the county, although they do not occur as frequently.

Baseline Air Quality. The SBCAPCD and Vandenberg AFB Memorandum of Agreement (MOA) outlines the administration of SBCAPCD regulations at Vandenberg AFB. This agreement between SBCAPCD and Vandenberg AFB was renegotiated and finalized on June 5, 1998. This agreement states that Vandenberg AFB is designated as a single stationary source (Tetra Tech, 2000).

The SBCAPCD has authority to implement regulations to assure attainment and maintenance of NAAQS by promulgating applicable sections of a state implementation plan (SIP). As part of the SIP, California has incorporated the General Conformity Rule. The U.S. EPA Conformity Rule, 40 CFR Part 93, Subpart B, and 40 CFR Part 51, Subpart W, implements Section 176(c) of the CAA, as amended in 42 U.S.C. 7506(c). Conformity to the SIP is defined in the federal CAA as requiring all federal agencies to ensure that any agency activity conform with an approved SIP in nonattainment or maintenance areas. Compliance with the SIP assists in eliminating or reducing the number of violations of the NAAQS, which expedites attainment of the standards. The Air Force is responsible for determining if the Proposed Action at Vandenberg AFB conform with the SIP.

The U.S. EPA Conformity Rule requires that the total of direct and indirect emissions of nonattainment criteria pollutants, including ozone precursors (VOCs and NO_X), be considered in determining conformity. The rule does not apply to actions where the total direct and indirect emissions do not exceed de minimis threshold levels for criteria pollutants established in 40 CFR Part 93.153(b) (projected emissions that are below regulator threshold).

Activities currently being conducted are exempt from the rule provided there is no increase in emissions above the de minimis levels specified in the rule. Table 3-4 presents the de minimis threshold level of nonattainment areas.

Table 3-4. De Minimis Threshold in Nonattainment Areas

Pollutant	Degree of Nonattainment	De Minimis Level (tons/year)
Ozone[(a)] (VOCs and NO_x)	Moderate	100
	Serious	50
	Severe	25
	Extreme	10
VOCs	Marginal	50
NO_X	Marginal	100
CO	All	100
PM_{10}[(a)]	Moderate	100
	Serious	70
SO_2 or NO_2	All	100
Lead	All	25

Note: (a) Nonattainment criteria pollutants.
CO = carbon monoxide
NO_X = nitrogen oxides
NO_2 = nitrogen dioxide
PM_{10} = particulate matter equal to or less than 10 microns in diameter
SO_X = sulfur oxides
SO_2 = sulfur dioxide
VOC = volatile organic compound

In addition to meeting de minimis requirements, a federal action must not be considered a regionally significant action. A federal action is considered regionally significant when the total emissions from the action equal or exceed 10 percent of the air quality control area's emissions inventory for any criteria pollutant. If a federal action meets de minimis requirements and is not considered a regionally significant action, it is exempt from further conformity analyses pursuant to 40 CFR Part 93.153.

Regional Meteorology. The climate at Vandenberg AFB is Mediterranean, or dry summer subtropical. The weather is cool and wet from November through April and warm and dry from May through October. The mean temperature ranges from 53 to 62 degrees Fahrenheit. Average annual rainfall for Vandenberg AFB ranges from 11 to 13 inches, most of which falls between November and April. Locally, winds are usually light during the nighttime

hours, reaching moderate speeds of approximately 12 miles per hour by the afternoon.

Environmental Consequences

Proposed Action. Santa Barbara County is in attainment for all standards except the federal and state ozone standards and the state standard for PM_{10}. The Proposed Action would have a significant impact on regional air quality if the estimate of total construction and operation emissions of the project exceeded current air quality standards within the Santa Barbara Air Basin. Exceedances would occur if calculated long- and short-term impacts from the direct and indirect emissions sources were significant when compared with SBCAPCD standards. Air quality impacts would occur during construction and operation activities under the Proposed Action.

Construction impacts would occur during grading, excavation, paving, facility construction and demolition, and mobile sources. Construction would occur over an approximately 8-month period beginning in October 2000. Combustive emissions would occur from equipment usage during all stages of construction, as well as from motor vehicles related to the commute of construction employees to and from the site. Fugitive dust would primarily occur during earth-moving activities, and VOC emissions would occur during asphalt paving and architectural coating activities. Emission calculations and technical assumptions are presented in Appendix C.

The proposed project emissions would not exceed the SBCAPCD significance threshold of 25 tons per project for any pollutant. Therefore, air quality impacts are not expected to exceed any ambient air quality standards or to inhibit the ROI from achieving NAAQS. In addition, construction activities would be temporary and in compliance with applicable construction permit requirements.

Impacts from long-term operations would occur mostly from mobile sources. The majority of the projected emissions would occur from motor vehicles associated with the commute of employees to and from the site; other vehicle emissions would include delivery vehicles and visitors to the site. The new facility would be utilized by the current golf course maintenance employees; therefore, substantial emissions from mobile sources are not anticipated.

Total direct emissions sources associated with intermittent operation of a 250-gallon MOGAS AST (replacing a 1,000-gallon MOGAS AST) and a 1,000-gallon diesel AST will be less than current levels and are considered negligible.

Air Conformity Analysis. An air conformity analysis is required for the Proposed Action to ensure that it would comply with implementation of the CAA and SBCAPCD Rule 702, *General Conformity*. For Santa Barbara County,

federal regulations require that the total annual emissions of ozone precursors (VOC and NO_X) associated with the Proposed Action not exceed the de minimis level of 50 tons per year (tpy). Table 3-5 compares the estimated annual project emissions with the threshold levels.

Table 3-5. Comparison of Conformity Threshold and Project Emissions, Vandenberg AFB

Emissions	VOCs (tons/yr)	NO_X (tons/yr)
Project emissions	0.33	4.89
Conformity threshold	50	50
Significance	None	None

NO_x = nitrogen oxides
VOC = volatile organic compound

Both federal and SBCAPCD regulations further require that the total emissions for each criteria pollutant from the Proposed Action should be less than 10 percent of the SBCAPCD 1999 Forecast Planning Emission Inventory level. A comparison among the SBCAPCD 1999 Forecast Planning Emission Inventory Levels, the proposed project emissions, and the latter as a percent of the former is shown in Table 3-6.

Table 3-6. Comparison of SBCAPCD 1999 Forecast Planning Emission Inventory and Proposed Action Emissions

Source Summary	VOCs	NO_X
SBCAPCD 1999 Forecast Planning Emission Inventory[(a)]	16,264.40 tpy	26,447.90 tpy
Proposed Project Emissions	0.33 tpy	4.89 tpy
Percent of SBCAPCD 1999 Forecast Planning Emission Inventory	0.002%	0.018%

Note: (a) SBCAPCD 1998 Clean Air Plan.
NO_X = nitrogen oxides
SBCAPCD = Santa Barbara County Air Pollution Control District
tpy = tons per year
VOC = volatile organic compound

The total emissions as a result of the Proposed Action are clearly less than 10 percent of SBCAPCD 1999 Forecast Planning Emission Inventory. The Proposed Action is deemed de minimis and not regionally significant and is exempt from further conformity requirements. This determination is in accordance with conformity requirements set forth in 40 CFR (b), (c), and Section 176 (c) (4) of the CAA and SBCAPCD Rule 702, *General Conformity.*

The Proposed Action would not have a measurable long-term effect on the SBCAPCD's ability to achieve and maintain attainment of the federal and state standards for criteria pollutants. Therefore, long-term air quality impacts would be insignificant.

Mitigation Measures and Best Management Practices. Particulate matter would be controlled by wetting techniques during construction activities. Decreasing the time period during which newly graded sites are exposed to the elements could further mitigate fugitive dust emission. VOC emissions could be further reduced by utilizing low VOC and environmentally compatible building materials.

Although the impacts caused by motor vehicle emissions would be minimal and well below standards, pollution prevention measures could be implemented to reduce motor vehicle emissions. These measures could involve transportation planning and management methods to reduce vehicle miles traveled, vehicle trips, and peak hour travel. These measures would further reduce both regional and localized vehicle-related emissions.

No-Action Alternative. Under the No-Action Alternative, no construction or demolition/disassembly activities would occur; therefore, baseline conditions would not change, and no additional air quality impacts would occur.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.4.3 Biological Resources

Affected Environment

Biological resources include the native and introduced plants and animals in the golf course maintenance compound and surrounding area. For discussion purposes, these are divided into vegetation, wildlife, threatened and endangered species, and sensitive habitats. The ROI for discussion of biological resources and potential impacts on these resources include the on-site (where construction and demolition/disassembly is proposed) and immediately adjacent property. This ROI includes the area within which potential impacts could occur and provides a basis for evaluating the level of impact.

The following discussion of biological resources is based on a survey of the proposed construction site and surrounding areas conducted in March 2000 and the Vandenberg AFB Integrated Natural Resources Management Plan (Tetra Tech, Inc., 1997).

Vegetation. The golf course maintenance compound is situated in a landscaped area. Plant species present in this area include iceplant (*Mesembryanthemum* spp.), trifolium species (*Trifolium* spp.), geranium species (*Geranium* spp.), and various annual grasses (*Poaceae* spp.). A eucalyptus (*Eucalyptus globulus*) windbreak surrounds the area to the north, east, and west. Some isolated Monterey pines (*Pinus radiata*) are also present within 50 feet of the project site. The southern end of the golf course maintenance compound is bounded by the golf course clubhouse parking lot (Earth Tech, 2000).

Wildlife. Wildlife observed on the project site includes the black phoebe (*Sayornis nigricans*), red-winged blackbird (*Agelaius phoeniceus*), European starling (*Sturnus vulgaris*), downy woodpecker (*Picoides pubescens*), and western fence lizard (*Sceloporus occidentalis*) (Earth Tech, 2000). Monarch butterflies (*Danaus plexippus*) were locally abundant on the project site. Other invertebrates observed included bees (*Apoidea* spp.) and dragonflies (*Odonata* spp.) (Earth Tech, 2000). Although no bats were observed during the survey conducted in March 2000, a bat roosts are known to be present in Buildings 1324 and 1341.

A 1998 bat species inventory indicates that Building 1324 was used as a night roost by Mexican free-tailed bats (*Tadarida brasiliensis*) and as a day roost by big brown bats (*Eptesicus fuscus*). The presence of a large (500+) day roost of big brown bats was also identified within Building 1341 (Pierson, 1998). Buildings 1324 and 1341 may also be used by two state-listed special concern species, the pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynoshinus townsendii*) (Pierson, 1998).

Threatened and Endangered Species. No special-status plant or wildlife species were observed, and there are no known populations of special-status species within or adjacent to the golf course maintenance compound. Based on the low habitat quality of the site, and the continued maintenance/disturbance of the site, it is unlikely that the site supports any special-status biological resources.

Sensitive Habitats. No wetlands or riparian areas occur within or adjacent to the golf course maintenance compound. The golf course maintenance compound is regularly maintained and subject to weed control measures and does not contain any sensitive habitat.

Environmental Consequences

Proposed Action. Under the Proposed Action, the construction of a new golf course maintenance facility and demolition of Buildings 1324, 1340, and 1341 is not expected to significantly affect biological resources with implementation of the best management practices described below.

The following paragraphs address the biological impacts associated with proposed construction and demolition/disassembly activities.

Vegetation and Wildlife. The Proposed Action would cause ground disturbance to less than 1 acre at the proposed construction site. The site is currently used as an equipment storage yard enclosed by a chain-link fence and a perimeter concrete and dirt drive. Minimal vegetation (i.e., spotty areas of grass) exists on the proposed construction site. Impacts to such highly disturbed human-created habitats that are associated with the Proposed Action are considered to be insignificant.

Because of the disturbed nature of the site, only common and/or disturbance-tolerant wildlife species are expected to inhabit or utilize the site. Impacts to such species due to the Proposed Action could include displacement of individuals inhabiting the site to adjacent areas and possibly some direct mortality to less mobile or burrowing species. Such impacts to common wildlife species are not considered to be significant.

The mature eucalyptus trees surrounding the site would not be harvested as a result of the Proposed Action; therefore, there should be no significant impact to potential monarch butterfly roosting sites.

The 1998 bat species inventory suggested that if buildings containing bat roosts are planned for demolition, appropriate planning should occur and possible alternative roosts should be established to keep bats from taking up residence in other structures (Pierson, 1998). Buildings 1324 and 1341 may contain state species of concern (pallid bat and Townsendi's big-eared bat). Best management practices discussed below could be implemented to reduce potential impacts to these species.

Threatened and Endangered Species. No state or federally listed rare, threatened, or endangered plant or wildlife species are currently known to occur within or near the golf course maintenance compound. The Proposed Action will not affect any rare, threatened, or endangered species; therefore, no significant impacts are anticipated.

Sensitive Habitats. No wetlands are present within or near the golf course maintenance compound; therefore, no significant impacts are anticipated.

Mitigation Measures and Best Management Practices. Implementation of best management practices would preclude the need for mitigation measures. Best management practices could be implemented to minimize potential effects to biological resources during construction activities.

- Staging areas should be situated away from the eucalyptus windbreaks, if practicable, to reduce noise and air quality impacts to this habitat.

- Buildings 1324 and 1341 should be inspected by a qualified biologist to determine whether bats are roosting. If bats are present, the biologist would ensure that they are removed prior to facility demolition/disassembly.

- Prior to demolition/disassembly of Buildings 1324 and 1341, an alternate bat roost should be constructed in a suitable location away from areas of high human activity that will provide a microclimate similar to that of the existing roosts.

- Once a new roost is in place, passive exclusion should be conducted to allow bats to leave but to prevent their return. If surveys determine that the roosts in Building 1324 and 1341 are nursing roosts, exclusion and demolition/disassembly activities should occur outside of the May-August breeding season.

- Construction activities should take place outside of the bird nesting season (March 15 to July 31) if native birds are found nesting on buildings to be demolished, or are nesting in trees close enough to the project site to risk abandonment from disturbance.

No-Action Alternative. There would be no effect on biological resources resulting from implementation of the No-Action Alternative. No ground-disturbing activities would occur. Buildings proposed for demolition/ disassembly would continue to be utilized.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.4.4 Cultural Resources

Affected Environment

Cultural resources are defined as prehistoric or historic sites, buildings, structures, districts, artifacts, or any other physical evidence of human activity considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. For ease of discussion, cultural resources have been divided into prehistoric and historic archaeological resources, historic buildings and structures, traditional cultural properties (TCPs) (e.g., sacred or ceremonial sites), and paleontological resources (e.g., fossil remains).

For this analysis, the ROI is synonymous with the Area of Potential Effect (APE), as defined by regulations implementing the NHPA. The ROI for the analysis of cultural resources includes all areas proposed for construction and demolition/disassembly where ground disturbance or other impacts may occur.

Prehistoric and Historic Archaeological Resources

Brief General Prehistory/History of Vandenberg AFB. Archaeological investigations of Vandenberg AFB indicate that human occupation of the area first occurred approximately 9,000 years ago. Early settlement was characterized by a hunting and gathering existence; however, over time, coastal villages began to develop that were occupied a large part of the year. Development of the plank canoe in approximately Anno Domini (A.D.) 500 increased travel by some of the Chumash groups to the Channel Islands and encouraged ocean fishing; however, full development of the indigenous culture did not occur until approximately A.D. 1150 when a number of permanent and semipermanent villages with populations of 200 to 600 were established (Environmental Solutions, 1990). The three major cultural periods recognized in the prehistory of the Vandenberg AFB area are the Early Period (7000-1500 Before Christ [B.C.]), the Middle Period (1500 B.C.-A.D. 1000), and the Late Period (1000-1850 A.D.). From the Late Period until the present, the area has supported populations of Native American peoples speaking dialects of the Chumash language.

European exploration of the area began in the middle 1500s; however, colonization (by the Spanish) did not take place until around 1788 with the establishment of Mission La Purísima Concepción and Mission Santa Ynez. By the middle 1800s, most of the mission lands had been transferred into secular ranchos; several farms and ranches operated on the installation between 1880 and the 1930s (Versar, Inc, 1991). In 1941, the U.S. Army acquired most of the land area now known as Vandenberg AFB to construct Camp Cooke; the installation was renamed Vandenberg AFB in 1958.

Prehistory/History of the Marshallia Ranch Area. The Marshallia Ranch area has a prehistoric and historic chronology that spans more than 150 years. Indian huts and a reported Indian cemetery (as yet not located) were described by Schumacher during a visit in 1877, and evidence of Native American artifacts has been identified in more recent inspections and surveys. The Ranch also lies within the footprint of the Juan Bautista de Anza National Historic Trail (significant for its association with historic Chumash culture, Spanish exploration, establishment of the mission system in California, Portola's expedition in 1769, and de Anza's expeditions of 1774 and 1776) (Dames & Moore, 1994) and is adjacent to the path of El Camino Real, the "King's Highway," used by the Spanish missionaries, explorers, and early settlers (30 CES/CEVPC, 2000).

In the mid-1800s, the project area was reportedly settled by Lucas Olivera, who constructed an adobe and resided on the ranch between 1837 and 1853. Edwin Marshall took over the Olivera adobe and constructed ranch-type dwellings (and eucalyptus tree windrows) between 1906 and 1937, but did not live on the ranch full time until 1933. In 1935, Marshall expanded into the "Dude Ranch" business and renamed the Marshall Ranch "Marshallia." After Marshall's death in 1937, the ranch was leased from Marshall's family by Morgan Tyler. The U.S. Army took over the ranch in 1941, but Tyler continued to run the ranch for Army officers until 1949. In 1957, the U.S. Air Force took over the ranch as a recreation facility and constructed an 18-hole golf course. During the 1960s, the Air Force removed most of the Marshallia Ranch outbuildings—of the original facilities, only the Guest House (the old Olivera Adobe), the garage, and the blacksmith shed survived the golf course expansion. All that remains of the original Olivera Adobe is its southwest corner.

Archaeological Studies. Numerous prehistoric and historic archaeological surveys have been conducted, and more than 2,000 sites were recorded within the boundary of the installation. Recorded sites span the entire time period described above and are highly variable in function and content. Prehistoric site types include dense shell middens, scatters of stone tools and debris, concentrations of ground stone milling tools, village sites, stone quarries, and temporary encampments (Environmental Solutions, Inc., 1990). Historic site types are varied and reflect activities associated with mission establishment, ranching, and military activities.

In March 2000, an archaeological records search of the project area was conducted at Vandenberg AFB (30 CES/CEVPC) and at the Central Coast Information Center at the University of California at Santa Barbara. The records search identified 23 previous archaeological studies within 1 mile of the project area. A review of the 23 studies indicates that 2 cultural resources sites have been recorded within 0.25 mile of the Marshallia Ranch—both are historic. CA-SBA-2334H, recorded in 1990, is about 450 meters (1,476 feet) from the

current ROI. The site encompasses 2,120 square meters (approximately 6,955 square feet) and consists of bottle glass fragments, china tableware fragments, globs of tar, a piece of metal, and a low-density scatter of marine shell. CA-SBA-3535H is the Marshallia Ranch itself.

In addition to the records search, archaeological survey and subsurface testing (20 shovel test pits [STPs]) were undertaken within the project area between March 16 and March 19, 2000. Results of the survey and testing identified the following:

- Lithic material was found in deposits that are clearly historic, confirming prehistoric/historic utilization of the area.
- No evidence of the reported Chumash cemetery was found.
- Recent and historic artifacts were present in nearly all of the STPs in varying densities, with STP #18 (immediately behind Building 1324, the old blacksmith shop) being the most noteworthy.

None of the findings has been deemed significant, and additional archaeological studies are not required.

Historic Buildings and Structures

In 1941, the U.S. Army acquired 92,000 acres along the California coast between Point Sal and Point Arguello as a new military reservation (Camp Cooke). During the first 5 years, a variety of military activities took place at the installation, including use of a portion of the facility as a World War II prisoner of war camp between 1944 and 1946. In mid-1946, the installation was placed in caretaker status and most of the land leased for agriculture; however, by 1950, the base had been reactivated to support armored infantry training for the Korean War (Versar, Inc., 1991). In 1957, the northern 65,000 acres of Camp Cooke was transferred to the U.S. Air Force and became known as Cooke AFB; it was renamed Vandenberg AFB in 1958 when the Strategic Air Command became the host command for the installation. The southern portion of the installation (approximately 20,000 acres) was controlled by the Navy as the Naval Missile Test Facility at Point Arguello until 1964, when it was also transferred to the Air Force. The present extent of the installation was completed in 1966, when an additional 15,000 acres was purchased from the Sudden Ranch.

Selected as the location for the construction of facilities to launch several types of intermediate and long-range ballistic missiles (e.g., Atlas, Thor, Titan), Vandenberg AFB has been the site of missions largely associated with the launch of military and civilian payloads since the late-1950s. The 30th Space Wing is

currently the host command at Vandenberg AFB and manages the Western Range, which conducts West Coast military and civilian space and missile launch operations.

Marshallia Ranch Buildings and Structures. Buildings and structures at the Marshallia Ranch were examined by Berry in 1989 and Roberts in 1984, but the site was not recorded until Palmer completed an inventory and National Register evaluation of historic resources at Vandenberg AFB in 1999. The site originally included the ranch residence and associated outbuildings, including a blacksmith shop, a garage, water tank foundations, a barn, a bunkhouse, and miscellaneous sheds. The residence building, which incorporates three partial walls from the Lucas Olivera adobe, is the current guest house (Building 1338). The blacksmith shed (existing Building 1324), built circa 1906-1910, is the oldest remaining original building directly associated with Edwin Marshall. It is currently used for golf course maintenance operations. Similarly, the garage (existing Building 1341), built circa 1933-1935, is also currently used for golf course operations. As described above, all of the other structures from the Marshall Ranch were removed by the Air Force in the 1960s. A Quonset hut was built by the Air Force circa 1963-1966 at the location of the Marshall barn. The proposed golf course maintenance facility will be constructed on the former site of the bunkhouse.

Palmer's National Register of Historic Places (National Register) eligibility evaluation of the Marshallia Ranch site in 1999 indicates that the buildings and structures do not retain sufficient integrity to qualify for inclusion in the National Register. SHPO concurrence is pending.

Traditional Cultural Properties (TCPs)

Although TCPs have been identified at Vandenberg AFB, consultation with Chumash elders indicates that there are none within the ROI.

Paleontological Resources

Paleontological resources include examples of ancient organic life preserved as fossils. Fossils found at Vandenberg AFB include the remains of both vertebrate and invertebrate animals. Remnants of Pleistocene Epoch (a period of time between 2 million and 8,000 years ago) terraces are found along the coastal areas of the installation. No paleontological resources have been identified within the ROI.

Environmental Consequences

Numerous laws and regulations require federal agencies to consider the effects of a proposed project on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship among involved agencies (e.g., the SHPO, Advisory Council on Historic Preservation). Under the NHPA, only those cultural resources determined to be significant (i.e., eligible for inclusion in the National Register) are subject to protection or consideration by a federal agency. Significant cultural resources, either prehistoric or historic in age, are referred to as "historic properties." In compliance with the NHPA, Air Force representatives from Vandenberg AFB will initiate the Section 106 review process with the California SHPO.

Proposed Action. Under the Proposed Action, buildings and structures within the ROI would be demolished/disassembled and a new facility constructed. Currently, there are no historic properties identified within the ROI. Prehistoric and historic archaeological remains are believed to be largely secondary deposits; historic buildings and structures have been determined not to be eligible for listing in the National Register, the historic eucalyptus tree windrow will not be removed, and there are no known TCPs or paleontological resources. Nonetheless, because of the long prehistory and history within the ROI, construction at the Marshallia Ranch site has the potential to unexpectedly uncover subsurface cultural remains. Mitigation measures to address this possibility are described below. Any other mitigative measures deemed appropriate during consultation with the California SHPO would also be implemented.

Mitigation Measures and Best Management Practices. In accordance with Vandenberg AFB policy (Lebow and Moratto, 1999), monitoring by a professional archaeologist and a Native American representative from the Santa Ynez Band of Chumash Indians will be required during all ground-disturbing activities. In addition, if during the course of any proposed activities, cultural materials (particularly, human remains) are unexpectedly discovered, work in the immediate vicinity of the cultural materials would cease and Vandenberg AFB cultural resources managers would be notified immediately.

Materials from disassembled buildings and structures may also be stockpiled for future use during the restoration of other historic properties at the installation. Following these procedures would preclude the need for mitigation measures.

No-Action Alternative. There would be no effect on cultural resources resulting from implementation of the No-Action Alternative. No demolition/ disassembly or construction would occur, and cultural resources would continue to be

managed in accordance with the appropriate Vandenberg AFB cultural resources management guidance.

Mitigation Measures and Best Management Practices. No mitigation measures would be required.

3.5 CUMULATIVE ENVIRONMENTAL CONSEQUENCES

Cumulative impacts result from "the incremental impact of actions when added to other past, present, and reasonable foreseeable future actions regardless of what agency undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (Council on Environmental Quality, 1978).

Because the Proposed Action is within the existing golf course maintenance compound and construction would follow best management practices to ensure any potential environmental impacts remain minor, no cumulative impacts are expected.

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APPENDIX A

GOLF COURSE MAINTENANCE COMPOUND PHOTOGRAPHS

View of golf course maintenance compound, looking north from the Marshallia Ranch Golf Course Clubhouse.

Building 1234, to be demolished.

Building 1340, to be demolished.

Building 1341, to be demolished.

Building 1344, to be retained.

Site of proposed Golf Course Maintenance Facility.

Fuel storage area, Building 1341 in background.

APPENDIX B

BEST MANAGEMENT PRACTICES

BEST MANAGEMENT PRACTICES

CONSTRUCTION OF GOLF COURSE MAINTENANCE FACILITY
AND DEMOLITION OR DISASSEMBLY OF THREE EXISTING BUILDINGS

This plan summarizes the Best Management Practices that have been identified in the environmental assessment (EA) for the construction of a golf course maintenance facility and demolition or disassembly of three existing buildings.

The Proposed Action includes the construction of a new 8,000-square-foot golf course maintenance facility to house existing maintenance operations. The new facility would be situated within the existing golf course maintenance compound and includes an enclosed 4,000-square-foot maintenance facility and two 2,000-square-foot covered storage areas on either side of the structure and all appurtenances, including additional paving and landscaping. The facility will contain space for a maintenance shop; storage for tools, parts, seed, and fertilizer; a locker room with showers and restrooms; and a meeting and break room.

After construction activities are completed, Buildings 1324, 1340, and 1341 would be demolished or disassembled (approximately 6,935 total square footage). Activities conducted at these buildings would be moved to the new golf course maintenance facility or to Building 1344. Building 1344 would be retained for use as an enclosed storage structure.

Best Management Practices suggested and/or recommended are included for the following environmental resources: hazardous materials management, hazardous waste management, asbestos, lead-based paint, pesticide usage, soils and geology, air quality, biological resources, and cultural resources.

Hazardous Material Management

- Conduct all storage, handling, and transportation of hazardous materials associated with construction and operation of the new facility in accordance with applicable regulations and established procedures.
- Incorporate the new facility into the Spill Prevention Control and Countermeasures Plan (SPCCP), which establishes responsibilities, requirements, and contingency plans in the event a release occurs.

Hazardous Waste Management

- Collect hazardous waste on a daily basis and transport to an approved satellite accumulation point (most likely at the on-base auto hobby shop) for proper disposal.
- Incorporate the new golf course maintenance facility into the SPCCP.

{PRIVATE }Storage Tanks{tc \l 4 "Storage Tanks"}

- Management of the storage tanks in accordance with applicable regulations would minimize the potential for impacts.
- Incorporate the new aboveground storage tank into the SPCCP.

{PRIVATE }Asbestos{tc \l 4 "Asbestos"}

- Conduct an inspection for asbestos prior to implementing demolition/disassembly activities.
- Coordination of asbestos-containing materials abatement or management in conjunction with demolition/disassembly activities could mitigate potential impacts.
- Compliance with National Emissions Standards for Hazardous Air Pollutants would further reduce and preclude potential asbestos exposure.

{PRIVATE }Lead-Based Paint{tc \l 4 "Lead-Based Paint"}

- Conduct a lead-based paint (LBP) inspection prior to implementing demolition/disassembly activities.
- Conduct demolition/disassembly activities in accordance with applicable federal and state regulations to minimize potential risks to human health and the environment.
- Dispose any LBP waste in a landfill permitted to accept this type of material.
- Coordination of LBP removal in conjunction with demolition/disassembly activities could further reduce potential impacts.
- Compliance with the Occupational Safety and Health Act would further reduce and preclude potential LBP exposure.

{PRIVATE }Pesticide Usage{tc \l 2 "Pesticide Usage"}

- Conduct pesticide management practices in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act and state regulations to ensure the proper and safe handling of chemicals.

Soils and Geology

{PRIVATE }Removal of vegetative cover and grading activities associated with the construction activities could increase the potential for erosion effects. However, these impacts should be short-term and minimal because the disturbed areas would be landscaped or paved when construction activities are completed.**{tc \l 4 "**Removal of vegetative cover and grading activities associated with the construction activities could increase the potential for erosion effects. However, these impacts would be short-term and minimal because the disturbed areas would be landscaped or paved when construction activities are completed.**"}**

Implement standard construction practices to limit soil erosion during construction activities. During

construction, the length of time vegetation or other cover is absent would be minimized. Standard construction practices that could be implemented to prevent potential soil erosion include:

- Add protective cover, such as mulch or straw, to exposed soil.
- Implement site grading procedures that limit the time that soils are exposed before they are covered by impermeable surfaces or vegetation.
- Implement storm water diversions to reduce water flow through exposed sites.
- Implement temporary impoundments to catch soil eroded from the site before it flows into the drainage network.
- Develop and implement soil erosion plans in coordination with the local Natural Resources Conservation Service.
- Because less than 1 acre of soil disturbance would occur, construction and operations activities would not require a National Pollutant Discharge Elimination System permit for storm water runoff.

Taken into account earthquake engineering standards, in accordance with the Uniform Building Code standards for seismic zoning, during the design of the facility.

Air Quality

Although significant emissions would not occur from project activities, the following actions could be taken to minimize project construction emissions:

- Particulate matter should be controlled by wetting techniques during construction activities.
- Decreasing the time period during which newly graded sites are exposed to the elements should further mitigate fugitive dust emission.
- Volatile organic compound (VOC) emissions could be further reduced by utilizing low-VOC and environmentally compatible building materials.
- Revegetate disturbed areas with appropriate ground cover upon completion of construction project.
- Implement transportation planning and management methods to reduce vehicle trips (i.e., carpooling).

Biological Resources

- Situate construction staging areas away from the eucalyptus windbreaks, if practicable, to reduce noise and air quality impacts to this habitat.
- Have a qualified biologist inspect Building 1324 to determine whether bats are roosting. If bats are present, the biologist should ensure that they are removed prior to facility demolition/disassembly.
- Prior to demolition/disassembly if Building 1324 and 1341, an alternate bat roost should be constructed in a suitable location away from areas of high human activity that will provide a similar microclimate as the existing roost.

- Once a new roost is in place, passive exclusion should be conducted to allow bats to leave but to prevent their return. If surveys determine that the roosts in Building 1324 and 1341 are nursing roosts, exclusion and demolition/disassembly activities should occur outside of the May-August breeding season.
- Conduct construction activities outside of bird nesting season (March 15 to July 31) if native birds are found nesting on buildings to be demolished, or are nesting in trees close enough to the project site to risk abandonment from disturbance.

Cultural Resources

- Because of the potential for cultural material to be uncovered during construction activities, an archaeological monitor and Native American representative should be on site during proposed facility construction and demolition/disassembly activities.
- Should significant subsurface deposits be uncovered during construction, work should stop and the California State Historic Preservation Officer should be notified.
- Materials from disassembled buildings and structures may be stockpiled for future use during the restoration of other historic properties at the installation.
- Proceed with consultation in compliance with Section 106 of the National Historic Preservation Act and its implementing regulations (36 Code of Federal Regulations Part 800).

APPENDIX C

AIR QUALITY CALCULATIONS AND TECHNICAL ASSUMPTIONS

1999 Forecast Planning Emission Inventory
SBCAPCD Summary of Emissions, Major Source Categories

Source	ROC	NOx	CO
Santa Barbara County Total (tons/day)	38.93	43.15	216.94
Santa Barbara County Total (tons/yr)	**14,209.45**	**15,749.75**	**79,183.10**
Outer Continental Shelf Stationary and Mobile Sources (tons/day)	5.63	29.31	17.45
Outer Continental Shelf Stationary and Mobile Sources (tons/yr)	**2,054.95**	**10,698.15**	**6,369.25**
Total (tons/year)	**16,264.40**	**26,447.90**	**85,552.35**
Proposed Action Total (tons/year)	**0.33**	**4.89**	**1.06**
Percentage	**0.002%**	**0.018%**	**0.001%**

Source: SBCAPCD 1998 Clean Air Plan.

Total Emissions from Construction of Golf Course Maintenance Facility
Vandenberg AFB

Period	10/00~06/01			
Emission[(a)]	VOC	NO_x	CO	PM_{10}
lbs/day	2.8	40.7	8.9	19.6
lbs/yr	665.3	9,776.6	2,126.0	4,714.7
tons/yr	0.33	4.89	1.06	2.36

Note: (a) PM_{10} emissions include combustive and fugitive emissions.

Emission factor source: SCAQMD, CEQA Handbook, 1993.

Vandenberg AFB EA - Proposed Action, CA

Combustive Emissions of ROG, NO_x, and CO Due to Construction

Input (for each phase)	10/00~06/01	
Total Building Area:	8,000	ft^2
Total Disturbed Area:	1	acres
Construction Duration:	0.67	years
Annual Construction Activity:	240	days/yr

Results: 10/00~06/01

	ROG	NO_x	CO	PM_{10} [(a)]
Emissions, lbs/day	2.77	40.74	8.86	0.00
Emissions, tons/yr	0.33	4.89	1.06	0.00

Calculation of Unmitigated Emissions

	ROG	NO_x	CO	PM_{10} [(a)]
Total new building space, ft^2:	8,000	8,000	8,000	8,000
Total years:	0.67	0.67	0.67	0.67
Building space, ft^2/yr:	12,000	12,000	12,000	12,000

Emissions by Construction Site (lbs/day)

Golf Course Maintenance Facility:	2.8	40.7	8.9	0.0
Total Emissions (lbs/day):	2.8	40.7	8.9	0.0

Construction Emission Factors

Reference: CEQA Handbook, SCAQMD, 1993.

	SCAQMD Emission Factor				
Land Use	ROC	NO_x	CO	PM_{10} [(a)]	(measure)
Government Office Complex	5.54E+01	8.15E+02	1.77E+02	8.00E-04	lbs/1,000 ft^2

Notes: Construction emissions include on-site construction equipment and workers' travel.

(a) PM_{10} emissions here are only for workers' travel.

Vandenberg AFB EA - Proposed Action, CA

Combustive Emissions of PM_{10} Due to Construction

Input (for each phase)	10/00~06/01	
Total Building Area:	8,000	ft^2
Total Disturbed Area:	1.00	acres
Construction Duration:	0.67	years
Annual Construction Activity:	240	days/yr

Results: 10/00~06/01

	ROG	NO_x	PM_{10}
Emissions, lbs/day	13.24	23.36	1.96
Emissions, tons/yr	1.59	2.80	0.23

Calculation of Unmitigated Emissions

	ROG	NO_x	PM_{10}
Total new acres disturbed:	1	1	1
Total new building space, ft^2:	8,000	8,000	8,000
Total years:	0.666666667	0.666666667	0.666666667
Area graded, acres/yr:	1.5	1.5	1.5
Building space, ft^2/yr:	12,000	12,000	12,000

Emissions by Source (lbs/day)

Grading Equipment	0.4	2.4	0.4
Stationary Equipment	2.0	1.6	0.1
Mobile Equipment	1.9	19.3	1.4
Architectural Coatings (Non-Res)	8.9	0.0	0.0
Total Emissions (lbs/day):	13.2	23.4	2.0

Emission Factors

Reference: Air Quality Thresholds of Significance, SMAQMD, 1994.

Source	SMAQMD Emission Factor		
	ROG	NO_x	PM_{10}
Grading Equipment	2.50E-01 lbs/acre/day	1.60E+00 lbs/acre/dy	2.80E-01 lbs/acre/dy
Asphalt Paving	2.62E-01 lbs/acre/day	NA	NA
Stationary Equipment	1.68E-04 lbs/day/ft^2	1.37E-04 lbs/day/ft^2	8.00E-06 lbs/day/ft^2
Mobile Equipment	1.60E-04 lbs/day/ft^2	1.61E-03 lbs/day/ft^2	1.20E-04 lbs/day/ft^2
Architectural Coatings (Non-Res)	8.15E-02 lbs/day/ft	NA	NA

Vandenberg AFB EA - Proposed Action, CA
PM10 Emissions Due to Site Preparation

User Input Parameters / Assumptions	Phase 10/00~06/01		
Acres graded per year:	1.5	acres/yr	
Grading days/yr:	5	days/yr	
Exposed days/yr:	90	days/yr graded area is exposed	
Grading Hours/day:	10	hr/day	
Soil piles area fraction:	0.10	(Fraction of site area covered by soil piles)	
Soil percent silt, s:	15	% (AP-42, Table 13.2.4-1, Western surface coal mining; Exposed ground)	
Soil percent moisture, M:	3.4	% (same reference as above)	
Annual rainfall days, H:	30	days/yr that rainfall exceeds 0.01 inch/day [reference Comparative Climatic Data, NOAA	
Wind speed > 12 mph %, I:	22	% [reference Climatic Atlas of U.S.]	
Fraction of TSP, J:	0.5	(SCAQMD recommendation)	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	5	ft	
Qty construction vehicles:	1	vehicles	
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	32.8	hr/acre	
Bulldozer mileage per acre	1.7	VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	5	VMT/day	
Construction VMT per acre	16.4	VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (4th Edition)
Bulldozing	0.75(s^1.5)/(M^1.4)	lbs/hr	8.24, Overburden
Grading	(0.60)(0.051)S^2.0	lbs/VMT	8.24, Overburden
Vehicle Traffic	(0.60)(3.72)/(M^4.3)	lbs/VMT	8.24, Overburden

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42.
Section 8.24, Western Surface Coal Mining (4th Edition)

Calculation of PM10 Emission Factors for Each Operation

	Emission Factor (mass/unit)		Operation Parameter		Emission Factor (lbs/acre)
Operation	10/00~06/01				
Bulldozing	7.85	lbs/hr	32.8	hr/acre	257.5
Grading	0.77	lbs/VMT	1.7	VMT/acre	1.3
Vehicle Traffic	0.01	lbs/VMT	16.4	VMT/acre	0.2

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface
Reference: CEQA Air Quality Handbook, SCAQMD, April 1993.

Soil Piles EF = 1.7(s/1.5)[(365 - H)/235](I/15)(J) = (s)(365 - H)(I)(J)/(3110.2941), p. A9-99.

	10/00~06/01	
Soil Piles EF =	17.8	lbs/day/acres covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction:	0.10	(Fraction of site area covered by soil piles)
Soil Piles EF =	1.78	lbs/day/acres graded
Graded Surface EF =	26.4	lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor		Graded Acres/	Exposed days	Emissions (lbs/yr)	Emissions (tons/yr)
	10/00~06/01					
Bulldozing	257.5	lbs/acre	1.5	NA	386	0.19
Grading	1.3	lbs/acre	1.5	NA	1.95	0.00
Vehicle Traffic	0.2	lbs/acre	1.5	NA	0.30	0.00
Erosion of Soil Piles	1.8	lbs/acre/day	1.5	90	240	0.12
Erosion of Graded Surface	26.4	lbs/acre/day	1.5	90	3,564	1.8
TOTAL					4,193	2.1
				tons/working day =		*0.009*

	10/00~06/01	
Soil Disturbance EF:	259	lbs/acre
Wind Erosion EF:	28.18	lbs/acre/day

Back calculate to get EF: 568.1 lbs/acre/grading day

Vandenberg AFB EA - Proposed Action, CA
Phase I Construction (Grading) Emissions
Estimate of time required to grade a specified area.
Updated 29 April 2000

Input Parameters

Phase:	10/00~06/01	
Construction area:	1.5	acres/yr
Qty Equipment:	1	

Assumptions.
Terrain is mostly flat.
Terrain is populated with medium brush; trees are negligible.
An average of 6" soil is removed during stripping.
An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
200 hp bulldozers are used for site clearing.
300 hp bulldozers are used for stripping, excavation, and backfill.
Vibratory drum rollers used for compacting.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acre/ (equip*day)	(Equip*day) /acre	Acres/yr 10/00~6/01	(Equip*days)/ yr
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	1.5	2.50
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.5	0.73
022 242 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	0.75	0.76
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.75	0.31
022 226 5020	Compaction	Vibrating roller, 6" lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.5	0.62
TOTAL								4.92

Grading days:	5	grading days/yr

Vandenberg AFB EA - Proposed Action, CA
Emission Factors for combustive sources

	phase I	
Total Building Area, B:	8000	ft2
Total Disturbed Area, D:	1	acres
Construction Duration, C:	0.67	years

ROG Emissions = (0.25 * D + B * 0.00033) / C + 0.0815 * [(B/C)^(1/2)]
13 lbs/day

NO_X Emissions = (1.6 * D + B * 0.001747) / C
23 lbs/day

PM_{10} Emissions = (0.28 * D + B * 0.000128) / C
2 lbs/day

Vandenberg AFB EA - Proposed Action, CA
Combustive Emissions of PM10 Due to Demolition

Input (for each phase)	10/00~06/01	
Total Demolition Area:	6,935	ft^2
Average Height of Building:	12	ft
Total Building Volume:	83,220	ft^3
Construction Duration:	0.67	years
Annual Construction Activity:	240	days/yr

Results: 10/00~06/01

	PM_{10}
Emissions, lbs/day	0.22
Emissions, tons/yr	0.03

Calculation of Unmitigated Emissions

	PM_{10}
Total volume wrecked (ft^3):	83,220
Total years:	0.67

Emissions by Source (lbs/day)

Demolition Activities	0.2
Total Emissions (lbs/day):	0.2

Emission Factors
Reference: CEQA Handbook, SCAQMD, 1993.

Source	SCAQMD Emission Factor PM_{10}
Building Demolition	4.20E-04 lbs/dy